CFE National 4 - Pack 3

Unit : Numeracy (NUM)

WORKSHEETS

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❖ **Worksheets covering all the unit topics**

❖ **+ Answers**

Use numerical skills to solve straightforward real – life problems involving money/time/measurement

- ➢ **Selecting and using appropriate numerical notation and units**

- ➢ **Selecting and carrying out calculations**

- ➢ **Reading measurements using a straightforward scale on an instrument**

- ➢ **Interpreting the measurements and results of calculations to make decisions**

- ➢ **Explaining decisions based on the results of measurements or calculations**

Interpret graphical data and situations involving probability to solve, straightforward real-life problems involving money/time/measurement

- ➢ **Extracting and interpreting data from at least two different straightforward graphical forms**

- ➢ **Making and explaining decisions based on the interpretation of data**

- ➢ **Making and explaining decisions based on probability**

Use numerical skills to solve straightforward real – life problems involving money/time/measurement

Four Rules

1. Copy and complete the following sums:

(a)
```
  2 5 6 5
+ 7 2 9 7
─────────
```

(b)
```
  7 3 6 3
− 2 5 7 8
─────────
```

(c)
```
  2 5 7
×     8
───────
```

(d)
```
8│5 7 3 6
```

2. **(a)** Find the sum of 245 + 567 + 7382

(b) What is the difference between 2637 and 1795?

3. In Notlimah High School there are the following number of pupils in S1 – S4.

S1 - 340

S2 - 371

S3 - 296

S4 - 254

How many pupils is this altogether in S1 – S4?

4. The Smythes set out on a journey of 234 miles. After they have travelled 147miles they stop for a break.

How many kilometres do they still have to travel?

5. At four shops Fiona spends the following amounts: £14.78, £7.45, £5.10 and £10.54.

(a) How much did Fiona spend altogether?

(b) How much did she have left from £50?

6. If it costs £8.60 to hire a bike for a day, how much would it cost to hire it for the whole of the month of June?

7. Find the total cost of :   3 tee shirts at £12.75

5 jumpers at £27.50

4 tops at £22.40

1 coat at £87.40

8. Sanjay earns £12 a day. How much will he earn in a year when he works 312 days?

9. 780 pupils in a school have to be put into classes of 30.

How many classes would there be?

10. Jotters come in packs of 25. If the Maths

Department need 1600 jotters, how many packs should they order?

11. A can of juice costs 30p.

(a) How many cans could be bought for £1.30.

(b) How much money would be left over?

12. A netball team consists of 7 players.

(a) How many teams can be formed from 60 people?

(b) How many would have to sit out?

13. A gardener has 329 plants which he wants to put in rows of 12.

How many rows will he plant and how many plants will be left over?

14. Mrs. Mackay bought a packet of tea costing £3.47and a packet of sugar costing 98p.

How much did she spend altogether?

15. Margaret gets £25 a week for pocket money. She spends £14.65 on bus fares, £4.75 on sweets and she saves the rest.

    (a) How much does she spend on bus fares and sweets?

    (b) Margaret is saving up to buy a new bike which costs £187. How many weeks will it take her to save enough to buy her bike?

16. Stewart has £50 to buy some presents. He is going to buy a computer gamecosting £15.99, a book costing £12.75 and some perfume costing £22.40.

Does he have enough money to buy all of these?

17. Tommy is buying a new television. He cuts out a voucher from a newspaper which is offering a discount of £75 on it.

Tecom is selling the television for £640.

How much would Tommy actually pay using his voucher?
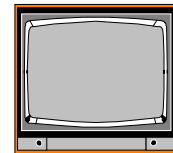
18. The local DIY store was charging £15.50 for a 2-litre can of paint. In a sale they were selling it for £12.95.

How much discount was this?

19. A pair of shoes cost £42.70 in a sale after£12.30 had been given as a discount.

How much were the shoes before the sale?

20. Sunita wants a new bike. The shop was offering a discount of £45 on it. The full price of the bike was £176.

How much did Sunita actually pay for her bike?

21. James saw an advert in the paper for a holiday in Paris. It cost £235 per person but the travel agent was offering it for £170 per person as a last minute deal.

James decided to take his girlfriend.

How much did he save altogether on the two packages?

22. A school got a discount of £250 on the full price of jotters. They paid £840 for them.

How much were they before the discount was given?

23. The full price of a computer in Computer world was £500 and in World of Computers was £555 with a discount of £60offered.
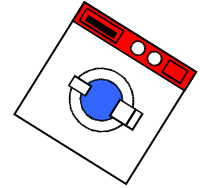
Which shop was the cheaper and by how much?

24. A school bought some calculators which cost £74.20. This included£10.20 VAT. How much will the calculators actually cost the school if there was no VAT charged?

25. In a "Special Offer" a washing machine is being offered "without VAT". The price is £336 but Jean only pays £280.

How much VAT was included before the offer?

26. Claire bought 12 large bottles of "Loca" for a party. They cost £1.19 each .

How much did she pay altogether?

27. It cost Elsie £34.80 to buy 8 Easter eggs for her friends. How much was this for each one?

28. 35 people were going ten-pin bowling. It cost each person £5.50 for 2 games.

How much did it cost altogether for the 35 people?
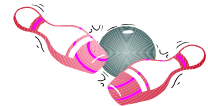
29. For her birthday, Naaila took her 4 best friends to the cinema and then to Le Hut de Pizza.

The total cost of the outing was £44.75. How much was this for each person? {CAREFUL!}

30. 6 friends had a day out to the seaside. They all had ice cream which cost £1.45each.

Two had a pizza costing £8.25each, three had a fish supper costing £6.30 each and the sixth one had a burger costing £5.49.

(a) Calculate the total cost of the day out.

(b) They decided to each put £8 in a "kitty". Was this enough to pay for everything they had?

(c) How much over or under were they?

31. Derek bought a house for £23000 and spent another £7000 doing lots of repairs to it and then sold it for £36000.
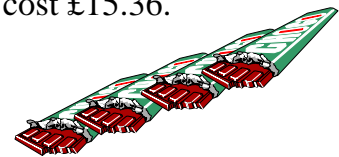
How much of a profit did he make?

32. Julie is a florist and makes up floral gifts to sell for charity.

It costs 85p to make each one and Julie sells them for £1.50.

(a) How much profit does she make on each one?

(b) She sold 150 altogether. How much did Julie make for charity altogether?

33. The school tuck shop bought a box of 48chocolate bars which cost £15.36.

They were sold for 40p each.

How much profit was made if all the bars were sold?

34. A few years ago it cost £1.50 to buy a share in an enterprise company.

(a) Sara bought 250 shares. How much did they cost her?

Nowadays they are worth only £1.25 each.

(b) How much in total has Sara lost on her 250 shares?

35. Bernie was making a patio in his back garden. He bought 50 slabs which cost him a total of £175.

He only used 42 of them and sold the rest to a friend for £3 each.

How much did he lose on each of the slabs he sold to his friend?

36. 10 people go out for a meal. The total bill for the meal is £231.

How much is this for each person?

37. The cost of entry to the Home Show was £6.50 for adults and £4.50 for children.

How much would it cost Barry to take his wife and 2 children?

38. Anna gets paid £16 464 each year and gets it in 12 equal amounts.

How much does she get each time?

39. Steven is tiling his kitchen and needs 435 tiles.

The tiles come in boxes of 25.

(a) How many boxes of tiles would he need?

(b) How many tiles would Steven have left over?

40. Linda is going to the 'Don't Get Fat' club to try to lose some weight. Her starting weight is 56·4kg.

This table shows her progress card for the first few weeks:

Week Number	Lost	Gained	Weight
1	2·3kg		
2	1·6kg		
3		0·4kg	
4	0·9kg		

Complete the table to show Linda's progress.

41. David wants a new bike that costs £216.

His Mum gives him £108 and he saves up the rest from his paper round.

If he manages to save £9 a week, how many weeks will it take him to get his bike?

42. At the seaside three friends have a game of crazy golf. Here are their scores:

Hole Number	1	2	3	4	5	6	7	8	9
Polly	3	5	4	7	1	3	3	3	4
Wally	2	4	6	8	2	3	2	4	1
Doodle	3	5	1	4	4	5	6	3	6

Who won the game?

43. Here are the prices of several items in the local chemist:

Shampoo:	£2.35
Deodorant:	£1.87
Shower Gel:	£2.75
Shaving Foam:	£2.24
Toothpaste:	£0.97
Handwash:	£1.24

(a) Adrian buys shampoo, deodorant and toothpaste.

How much does it cost him altogether?

(b) The next week there is a special offer: | Buy 3 items and get the cheapest one free!

How much would the same three items have cost Adrian now?

44. A section of the Clyde walkway is 17km long. Kashef and his friend walked different parts of it on three different days. On day 1 they walked 5·73km and on day 2 they walked 4·05km.

(a) How far did they walk altogether over the two days?

(b) If they walked the remainder of the 17km on day 3, how far did they walk on that day?

Add and Subtract positive and negative numbers

1. Calculate :

(a) $3 + (-2)$	**(b)** $-3 + (-2)$	**(c)** $6 - 3$	**(d)** $4 + 4$
(e) $-5 + 7$	**(f)** $9 - 2$	**(g)** $7 - 3$	**(h)** $8 + 2$
(i) $10 + (-5)$	**(j)** $-2 + (-4)$	**(k)** $12 + (-7)$	**(l)** $-4 + 8$
(m) $-3 + 2$	**(n)** $-5 + (-8)$	**(o)** $8 + (-7)$	**(p)** $4 - 5$

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2. Calculate

(a) $20 - 30$	**(b)** $70 + (-20)$	**(c)** $-50 + 10$	**(d)** $-30 - 40$
(e) $-18 + 8$	**(f)** $35 - 40$	**(g)** $-27 - 15$	**(h)** $21 + (-37)$
(i) $12 - 35$	**(j)** $-13 + 49$	**(k)** $15 + (-15)$	**(l)** $130 - 200$
(m) $-37 + 14$	**(n)** $58 - 85$	**(o)** $-19 - 52$	**(p)** $-72 + (-17)$

3. The temperature in Glasgow was 7℃. The temperature in Oslo was 11 degrees lower.

What was the Oslo temperature?

4. My bank balance was –£25. I paid in £20 my aunt gave me for my birthday.

What is my new balance?

5. When a plane took off the outside temperature was 14°C . By the time it had climbed to 30000feet, the outside temperature was -45°C.

By many degrees had the temperature fallen?

6. Freezers operate at different temperatures depending on their star ratings. A 1 star freezer operates at -6°C and a 2 star at -12°C.

What is the difference in the operating temperatures of these two freezers?

7. A year such as 123BC can be thought of as -123 and one such as 2003AD as +2003.

The Roman Emporer Tiberius Caesar Augustus was born in the year42BC and died in the year 37AD. How old was he when he died?

8. Put the answers to these calculations in order starting with the smallest.
   A $-12 - (-2)$ B $-3 + 13$ C $-5 + (-6)$

Percentages

1. *Littletrees* department store is offering discounts of 10% to customers who take a store card. Calculate the cost of items which cost the following amounts before discount:

   (a) £50   (b) £100   (c) £25   (d) £30

   (e) £95   (f) £10   (g) £200   (h) £150

   (i) £230   (j) £890   (k) £275   (l) £184

   (m) £99   (n) £67   (o) £23   (p) £128

2. The *Carillon Call Company* is giving a 15% loyalty discount to telephone customers. Calculate the cost of these bills after the discount is applied:

   (a) £70   (b) £25   (c) £98   (d) £43

   (e) £120   (f) £50   (g) £77   (h) £114

   (i) £76.80   (j) £92.60   (k) £55.20   (l) £136.40

   (m) £22.20   (n) £35.40   (o) £62.80   (p) £100.60

3. *CutscoCash'n'Carry* charge VAT at the rate of 20%. Calculate the VAT due on goods costing :

   (a) £100   (b) £30   (c) £50   (d) £70

   (e) £250   (f) £180   (g) £90   (h) £400

   (i) £82   (j) £76   (k) £94   (l) £138

   (m) £104   (n) £222   (o) £68   (p) £36

4. Calculate the final cost of these bills at the *CutscoCash'n'Carry*

   (a) £100   (b) £50   (c) £80   (d) £30

   (e) £45   (f) £250   (g) £700   (h) £2000

   (i) £10000   (j) £170   (k) £283   (l) £49

   (m) £139   (n) £22   (o) £1995   (p) £7.50

VAT

The rate of VAT is currently 20%.

1. A docking system costs £240 plus VAT. How much would have to be paid for it?

2. In the Carry and Cash, Pauline boughta box of chocolate bars. The price tag said £12.60 plus VAT.

How much did Pauline actually pay for her chocolate bars?

3. Copy and complete this electricity bill:
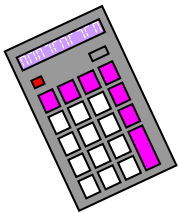
Cost of electricity: =   £ 360

VAT: =   £ _____

Total : =

4. Copy and complete this Gas Bill:

Cost of gas: =   £83.50

VAT: =

_____

Total: =

5. A school bought some calculators which cost £74.20 plus VAT.

How much will the calculators actually cost the school?

6. A washing machine is being offered for £329 plus VAT. Calculate the price of the washing machine after VAT is added.

More Percentages

1. Find: **(a)** 25% of 40   **(b)** 10% of 780   **(c)** 20% of 55

2. In a quiz there were 60 questions altogether:

    Team A answered 20% of the questions correctly

    Team B answered 25% of the questions correctly

    Team C answered 50% of the questions correctly

    How **many** questions did each team answer correctly?

3. 75% of the pupils in a school do not attend on the last day before a holiday. If there are 1244 pupils in the school, how many did attend on the last day?

4. Find the following amounts:

    (a) 45% of £450   **(b)** 23% of £236   **(c)** 78% of £890

5. During a period of 55 minutes a pupil spent 15% of the time day dreaming. How many minutes is this?

6. A packet of crisps weighs 30g. Special offer packs give 40% extra free. What weight of crisps do you get in a packet now?
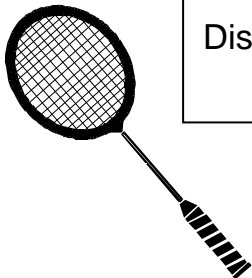
7. Susan was buying a new computer. She had to pay a deposit of 30%.

    How much deposit would have to pay if her computer was going to cost £900?

8. In a sale, a bike which normally costs £290 is being offered with a 24% discount. How much would be paid for the bike after discount?

9. The local sports shop is having a sale and offering the reductions shown in the diagrams.

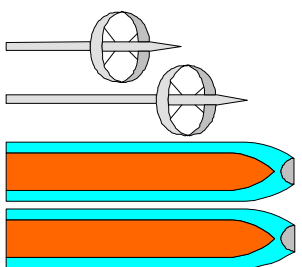Calculate the 'sale' price of each item.

(a)

Badminton Racquet: £30

Discount: 20%

(b)

Ice Skates: £45

Discount: 10%

(c)

Skis: £256

Discount: 25%

10. In a group of 240 pupils 50% of them said they enjoyed Maths.

How many pupils was this?

11. In a special offer in the supermarket a packet of soap powder was offering

'20% EXTRA FREE'.

The packet normally weighs 700g. How much extra would you receive?

12. (a) At a Halloween disco there were 160 pupils. 10% of them were dressed as witches, 25% as ghosts and the rest as something else.

How many were **not** witches or ghosts?

(b) 75% of them took a turnip lantern. How many turnip lanterns were there?

(c) 20% of the pupils didn't dance. How many **did** dance?

Percentages again

1. The table below shows Gianni's test scores for his school subjects.

	English	Maths	French	History	Biology	Craft	Physics	Art
score	42	22	60	16	21	45	18	36
out of	50	25	75	20	25	60	30	40

    (a) Express each score as a percentage.

    (b) In which subject did he do best?

2. What percentage is

    (a) 19 of 76   **(b)** 54 of 60   **(c)** 15 of 25   **(d)** 28 of 80

    (e) 84 of 168   **(f)** 56 of 160   **(g)** 126 of 180   **(h)** 72 of 180

    (i) 63 of 315   **(j)** 126 of 280   **(k)** 54 of 360   **(l)** 108 of 150

    (m) 176 of 320   **(n)** 5 of 50   **(o)** 60 of 75   **(p)** 48 of 192 ?

3. Calculate the percentage profit (as a percentage of the cost price) on the following

    (a) cost price : £75   **(b)** cost price : £24

           selling price : £90   selling price :£30

    (c) cost price : £180   **(d)** cost price : £ 17.60

           selling price : £ 198   selling price £24.64

    (e) cost price : 10p   **(f)** cost price : 50 p

           selling price : 12p   selling price : 52p

4. Mrs. Patel buys 12 light bulbs at the supermarket. When she gets home she finds that 3 of them are faulty. What percentage are faulty?

5. In a class survey it was found that 27 out of the 30 pupils in the class were wearing full uniform. What percentage of the class were wearing full uniform?

6.   Chris is driving to London, a distance of 640 kilometres. What percentage of his journey has he covered when he has driven 416 kilometres ?

7.   Donna gets £7.50 per week in pocket money. She wants to buy a magazine costing £3.60. What percentage of her pocket money is this?

8.   In a school of 720 pupils, 396 are boys.

What percentage are girls?

Fractions, Decimals and Percentages (1)

1. Calculate:

   (a) $\frac{1}{3}$ of £96

   (b) $\frac{1}{5}$ of 65kg

   (c) $\frac{1}{7}$ of £36.40

   (d) $\frac{3}{4}$ of 48cm

   (e) $\frac{5}{8}$ of £136

   (f) $\frac{7}{8}$ of 58·4g

   (g) $\frac{2}{3}$ of £15.96

   (h) $\frac{9}{10}$ of 45kg

   (i) $\frac{3}{7}$ of £10.92

   (j) $\frac{5}{6}$ of £5.10

   (k) $\frac{3}{8}$ of 984mm

   (l) $\frac{3}{4}$ of £1.08

   (m) $\frac{11}{20}$ of £2540

   (n) $\frac{9}{16}$ of 480tonnes

   (o) $\frac{5}{17}$ of 25·5kg

2. Calculate :

   (a) 26% of £90

   (b) 54% of 300g

   (c) 13% of £45

   (d) 42% of 60kg

   (e) 17% of £10

   (f) 21% of 85cm

   (g) 27% of £64

   (h) 5% of £340

   (i) 65% of £880

   (j) 8% of 4500g

   (k) 80% of £250

   (l) 94% of £360

   (m) 78% of £1500

   (n) 4% of £12

   (o) 7% of 1200tonnes

3. Calculate each of the following rounding your answers to the nearest penny:

   (a) 36% of £13.20

   (b) 24% of £12.71

   (c) 1% of £6.35

   (d) 47% of 89p

   (e) 57% of £10.43

   (f) 41% of 51p

   (g) 12% of £18.30

   (h) 4% of £341.20

   (i) 5% of £834.65

   (j) 81% of £3.45

   (k) 9% of £2.57

   (l) 34% of 88p

   (m) 71% of £1.53

   (n) 3% of £12.08

   (o) 57% of 97p

4. Change each of the following fractions to percentages. (*Round your answer to the nearest percent when necessary*)

(a) $\dfrac{4}{5}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{7}{25}$ (d) $\dfrac{7}{10}$ (e) $\dfrac{17}{100}$ (f) $\dfrac{19}{20}$

(g) $\dfrac{5}{9}$ (h) $\dfrac{3}{11}$ (i) $\dfrac{18}{25}$ (j) $\dfrac{5}{12}$ (k) $\dfrac{1}{8}$ (l) $\dfrac{8}{13}$

(m) $\dfrac{1}{15}$ (n) $\dfrac{3}{7}$ (o) $\dfrac{6}{31}$ (p) $\dfrac{38}{365}$ (q) $\dfrac{48}{95}$ (r) $\dfrac{6}{29}$

5. John's schedule marks are shown in the table below:

Subject	Maths	English	Tech	Science	Art	History	French
Mark	45 out of 60	64 out of 72	40 out of 65	38 out of 55	75 out of 90	27 out of 40	63 out of 95
%							

(a) **Copy** and complete the table by calculating John's "percentage mark" for each subject.(*Round each answer to the nearest percent where necessary*).

(b) Which was John's best subject?

(c) Which was his worst?

Fractions, Decimals and Percentages (2)

1. **Increase** each of the following by 15%.

    (a)   £250   **(b)**   160kg   **(c)**   25cm   **(d)**   £36

    (e)   2100g   **(f)** 210°C   **(g)**   £8   **(h)**   £3500
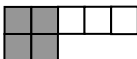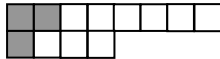
2. **Decrease** each of the amounts in **Q1** by 20%.

3. The nine workers in a small factory are given different percentage wage rises dependant upon their length of service. The table below represents their weekly wages.

Copy and complete the table below:

Name	Old Wage	% Increase	Increase	New Wage
John Hughes	£230	4%	£9.20	£239.20
Steven Higgins	£168	6%		
Susan Marshal	£210	4%		
Stewart Aitken	£145	2%		
Pamela Grant	£360	3·5%		
Neil McShane	£225	6%		
James Mackie	£235	8%		
Lorna Graham	£210	4·5%		
Pat Lavery	£468	5%		

4. For each diagram below, write down **(i)** the fraction shaded; **(ii)** the percentage shaded.

    (a)   **(b)**   **(c)**   **(d)**

    (e)   **(f)**   **(g)**

5.   Calculate the fraction and percentage of vowels in each word below.

   (a)   Mathematics   **(b)**   Equations   **(c)**   Algebra

6.   **(a)**   In a class of thirty pupils, 6 were absent. Calculate the percentage absent.

     (b)   A machine produces 300 heating elements in a morning. Six are found to be defective.

        What percentage of the elements are defective?

     (c)   A small farm has 160 sheep. During a severe storm the farmer loses 8 sheep.

        What percentage of the sheep got lost?

Fractions, Decimals and Percentages (3)

1. **VAT** is charged at 20%. Calculate the VAT on each item below.

   (a) A stereo costing £230

   (b) A fridge costing £148

   (c) A cooker costing £456

   (d) A watch costing £68

   (e) A computer costing £650

   (f) A gold ring costing £134

2. Find the total cost of each item in Q1 after the VAT has been added.

3. A man places £2300 in a savings account which has an annual interest rate of 4%.

   (a) How much interest will he earn in the first year ?

   (b) Assuming he does not touch his money, how much does he now have in the bank at the beginning of year two?

   (c) Hence calculate the interest he will get at the end of year two.

4. A woman places £22100 in a Post Office savings account which has an annual interest rate of 5%.

   (a) How much interest will she earn in the first year?

   (b) Assuming she does not touch her money, how much does she now have in the bank at the beginning of year two?

   (c) Hence calculate the interest she will get at the end of year two.

5. Steven places £800 in a Building Society at an annual interest rate of 3%.

   How much will he have in his account after two years?

6. Susan invests £800 in a Building Society at an annual interest rate of 6%.

   How much will she have in her account after two years?

Fractions

1. Find: **(a)** $\frac{1}{2}$ of £30 **(b)** $\frac{1}{3}$ of £96 **(c)** $\frac{1}{4}$ of £20

   (d) $\frac{1}{5}$ of £230 **(e)** $\frac{1}{10}$ of £324 **(f)** $\frac{1}{6}$ of £36
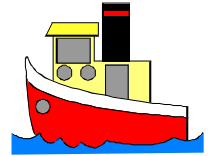
2. Work out the answers to:

   (a) $\frac{1}{2}$ of 420cm **(b)** $\frac{1}{4}$ of 3320 ml **(c)** $\frac{1}{6}$ of £564

3. A piece of wood is 8·4m long. $\frac{1}{3}$ of it is used.

   How many metres are used?

4. On board a ship there has to be someone 'on watch' all the time. Each person is on duty for $\frac{1}{4}$ of a day. How many hours is this?

5. In the cinema there are 230 people. $\frac{1}{10}$ of them are children.

   How many adults are there?

6. There are 8 people in a rowing team. $\frac{1}{4}$ of them are girls? How many **boys** are there in the team?

7. In a basket there are 24 Easter eggs. $\frac{1}{4}$ of them are milk chocolate, $\frac{1}{3}$ of them are dark chocolate and the rest are white chocolate.

   How many white chocolate eggs are there?

8. Anne is going to be 16 on her next birthday. $\frac{1}{8}$ of the candles on her cake are green, $\frac{1}{2}$ are red and the rest white.

   How many white candles are there?

9. In Killiber High School there are 252 pupils in third year. On the last day of term only $\frac{1}{7}$ of them were in school.

    (a) How **many** pupils were at school?

    (b) How many were absent?

10. A film lasts for 2hrs and 30mins. After I had watched $\frac{1}{5}$ of it I fell asleep. How many **minutes** of the film did I see before I fell asleep?

11. On $\frac{1}{6}$ of the days in June this year there was some rain.

On how many days was it **completely dry**?

12. In the course of a day most of us spend $\frac{1}{3}$ of it asleep.

For how many hours each day are we awake?

More fractions

1. Find the following:

    (a) $\frac{3}{4}$ of 256 m   **(b)** $\frac{2}{5}$ of £400   **(c)** $\frac{5}{8}$ of £308

2. There are 48 sweets in a packet. $\frac{3}{4}$ of them are citrus flavours.

How many citrus sweets are there in the packet?

3. In a class of 24 pupils $\frac{7}{8}$ of them are present.

    (a) How many pupils are present?

    (b) How many are absent?

4. In a school there are 1450 pupils. $\frac{4}{5}$ of them bring a mobilephone to school.

   (a) How many pupils bring a mobile phone?

   (b) How many do not bring a phone with them?

5. In a box of 36 chocolates, $\frac{4}{9}$ of them are milk chocolate, $\frac{1}{3}$ of them are white chocolate and the rest are dark chocolate.

   (a) How many are milk chocolate?

   (b) How many are white chocolate?

   (c) How many are dark chocolate?

6. There are 100 pencils in a box. $\frac{3}{5}$ of them are plain. $\frac{3}{8}$ of the remainder have rubber tips and the rest are coloured.

   (a) How many plain pencils are there?

   (b) How many rubber-tipped pencils are there?

   (c) How many coloured pencils are there?

7. $\frac{5}{7}$ of the cars in a car park were grey. If there were 560 cars altogether, how many of them were grey?

8. Daniel was building a jigsaw which had 600 pieces in it. If he had fitted in $\frac{5}{12}$ of the pieces, how many had he **still to fit**?

9. In a box of 36 coloured pencils, $\frac{2}{9}$ of them were shades of red. How many were **not** shades of red?

ROUNDING – revision and 2 decimal places

1.   Round to the **nearest unit**:

    (a)   2·9   **(b)**   5·6   **(c)**   1·4   **(d)**   8·3

    (e)   7·7   **(f)**   3·1   **(g)**   4·5   **(h)**   9·2

    (i)   2·12   **(j)**   7·93   **(k)**   6·25   **(l)**   1·09

    (m)   4·76   **(n)**   8·45   **(o)**   3·93   **(p)**   5·55

3.   Round to the **nearest unit**:

    (a)   12·4   **(b)**   35·1   **(c)**   27·6   **(d)**   82·7

    (e)   17·9   **(f)**   38·2   **(g)**   36·3   **(h)**   90·2

    (i)   123·1   **(j)**   563·8   **(k)**   18·5   **(l)**   343·3

    (m)   44·87   **(n)**   218·34   **(o)** 73·82   **(p)** 119·18

3.   Round to the **nearest ten**:

    (a)   23   **(b)**   74   **(c)**   68   **(d)**   85

    (e)   57   **(f)**   31   **(g)**   15   **(h)**   94

    (i)   62   **(j)**   75   **(k)**   16   **(l)**   49

    (m)   33   **(n)**   82   **(o)**   71   **(p)**   34

4.   Round to the **nearest ten**:

    (a)   213   **(b)**   128   **(c)**   761   **(d)**   344

    (e)   275   **(f)**   119   **(g)**   515   **(h)**   202

    (i)   112   **(j)**   563   **(k)**   136   **(l)**   499

    (m)   431   **(n)**   184   **(o)**   256   **(p)**   314

5.   Round to the **nearest hundred**:

    (a)   270   **(b)**   150   **(c)**   340   **(d)**   830

    (e)   725   **(f)**   384   **(g)**   451   **(h)**   919

    (i)   111   **(j)**   252   **(k)**   666   **(l)**   715

(m)	545	**(n)**	186	**(o)**	237	**(p)**	809
(q)	1265	**(r)**	1354	**(s)**	2136	**(t)**	3456
(u)	1881	**(v)**	1999	**(w)**	6543	**(x)**	8129

6.   Round each number to   **i.**   **the nearest ten**

ii.   **the nearest hundred**

iii.   **the nearest thousand**:

(a)	2911	**(b)**	5667	**(c)**	1459	**(d)**	8321
(e)	7774	**(f)**	3103	**(g)**	4518	**(h)**	9286
(i)	2125	**(j)**	7932	**(k)**	6253	**(l)**	1094
(m)	4768	**(n)**	8451	**(o)**	3939	**(p)**	5999

7.   Round the following numbers to 1 decimal place:

(a)	0·31	**(b)**	0·29	**(c)**	0·56	**(d)**	0·61
(e)	0·22	**(f)**	0·18	**(g)**	0·37	**(h)**	0·26
(i)	0·94	**(j)**	0·43	**(k)**	0·75	**(l)**	0·68
(m)	0·86	**(n)**	0·24	**(o)**	0·73	**(p)**	0·99

8.   Round the following numbers to 1 decimal place:

(a)	2·91	**(b)**	5·68	**(c)**	1·47	**(d)**	8·33
(e)	7·75	**(f)**	3·11	**(g)**	4·52	**(h)**	9·26
(i)	2·12	**(j)**	7·93	**(k)**	6·25	**(l)**	1·09
(m)	4·76	**(n)**	8·45	**(o)**	3·93	**(p)**	5·55

9.   Round the following numbers to 1 decimal place:

(a)	62·035	**(b)**	15·619	**(c)**	31·475	**(d)** 18·303
(e)	47·275	**(f)**	0·123	**(g)**	10·542	**(h)** 39·626
(i)	20·818	**(j)**	0·2938	**(k)**	61·465	**(l)** 1·0094

(m) 49·869   **(n)** 8·4011   **(o)** 17·995   **(p)** 0.·987

10. Round the following numbers to 2 decimal places:

     (a) 2·915   **(b)** 5·663   **(c)** 1·408   **(d)** 8·321

     (e) 7·761   **(f)** 3·115   **(g)** 4·526   **(h)** 9·212

     (i) 2·128   **(j)** 7·937   **(k)** 6·254   **(l)** 1·092

     (m) 4·763   **(n)** 8·451   **(o)** 3·938   **(p)** 5·503

11. Calculate the following and give your answer correct to 2 decimal places.

     (a) £37 is shared among 6 people. How much does each person get?

     (b) Eggs cost £1.90 a dozen. How much does it cost for one egg?

     (c) Jan can run 90 m in 96 second. How long does it take her to run 1 m?

     (d) Karen drives 400 miles in 7 hours. How far does she drive in 1 hour?

     (e) A printer can print 377 pages in 1 hour. How many does it print in 1 minute

     (f) Granny Smith left £967 in her will, to be shared among her 7 grandchildren.

          How much will each receive?

     (g) A photographic company charges £3.99 to develop 24 photographs.

          How much does it cost for 1 photograph?

     (h) Chris took 3 ½ minutes to complete 4 laps of the go-cart racing track.

          How long did it take him for 1 lap?

     (i) 15 videos on a shelf take up 44 centimetres of shelf space.

          How much space does one video take up?

     (j) It takes me 44 minutes to cycle 16 km. How far can I cycle in 1 minute?

FURTHER ROUNDING

1. Re-write these sentences giving the measurement to the nearest unit:

    (a) Ahmed measured the length of his lounge to be 4·3 metres.

    (b) The height of the Eiffel Tower is 323·75 metres high.

    (c) The tallest man in the world is 289·5 centimetres tall.

    (d) The longest fingernails ever grown measured 484·34 cm.

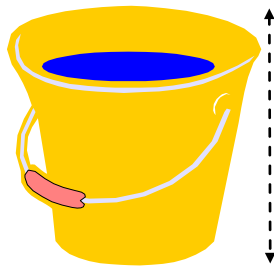**2.** Measure the heights of these pictures giving answers to the nearest centimetre.

    (a)   **(b)**   POSTKASSE

    (c)

3. Round each of these amounts of money to the <u>nearest penny</u>:

    (a) £2.4624   **(b)** £90.276   **(c)** £32.4053   **(d)** £86.899

4. Do these sums on your calculator and write down your answers rounded to the <u>nearest penny</u>:

    (a) £23.21 ÷ 5   **(b)** £573.86 ÷ 9   **(c)** £5.56 ÷ 6   **(d)** £258 ÷ 7
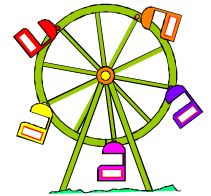
Answer these questions to the nearest penny.

5.   Darren bought 4 oranges in a pack which cost him £1.53.

How much is this for each one?

6.   At a funfair there is a special ticket which allows you to have 12 turns on the roller coaster. The cost of this ticket is £22.

How much is this for each turn?

7.   A weekly pass for the bus costs £15.25.   Callum uses the pass to travel to work every day for a full week.(7 days)

How much does it cost him per day?

ROUNDING – Significant figures

1.   Round to **1** significant figure:

    (a) 23   **(b)** 5·5   **(c)** 78   **(d)** 31

    (e) 125   **(f)** 309   **(g)** 291   **(h)** 843.6

    (i) 7646   **(j)** 1928   **(k)** 8003   **(l)** 5192·7

    (m) 10·9   **(n)** 556·2   **(o)** 3·98   **(p)** 12345

    (q) 1·01   **(e)** 93   **(s)** 0·86   **(t)** 606

2.   Round to **2** significant figures:

    (a) 8·72   **(b)** 92·8   **(c)** 0·186   **(d)** 679

    (e) 2·112   **(f)** 6·463   **(g)** 31·4   **(h)** 25·8

    (i) 24·27   **(j)** 18·76   **(k)** 6397   **(l)** 4·99

    (m) 0·0526   **(n)** 0·00613   **(o)** 0·08702   **(p)** 13814

    (q) 2·456   **(r)** 45192   **(s)** 29·302   **(t)** 0·756

3.   Calculate and give your answer correct to **2** significant figures

    (a) $5 \cdot 16 \times 22 \cdot 7$ **(b)** $27 \cdot 3 \div 6 \cdot 84$ **(c)** $3 \cdot 14 \times 9^2$

    (d) $25 \cdot 8 \times 1 \cdot 76 \div 1 \cdot 1$ **(e)** $13 \cdot 2 \times 3 \cdot 72$ **(f)** $25 \cdot 8 \div 52 \cdot 9$

    (g) $1 \cdot 14^2 \times 2 \cdot 92$ **(h)** $5 \cdot 2 \times 0 \cdot .49 \div 30 \cdot 3$ **(i)** $234 \div (0 \cdot 028 \times 33)$

    (j) $(0 \cdot 08 \times 25^2) \div 3$ **(k)** $(1 \cdot 05)^2 \times 455$ **(l)** $3 \cdot 14 \times 12^2 \div 7$

Calculate distance given speed and time

1.   Calculate the distance, in kilometres, covered by a car travelling at

    (a)   50 km /h for 3 hrs **(b)**   40 km/h for 4 hrs **(c)**   60 km/h for 2 hrs

    (d)   45 km /h for 2 hrs **(e)**   80 km/h for 3 hrs **(f)**   75 km/h for 5 hrs

    (g)   64 km /h for 6 hrs **(h)**   52 km/h for 4 hrs **(i)**   96 km/h for 3 hrs

    (j)   48 km /h for 4 hrs **(k)**   24 km/h for 7 hrs **(l)**   110 km/h for 2 hrs

2.   Calculate the distance, in miles, covered by a car travelling at

    (a)   50 mph for 2 ½ hrs **(b)**   36 mph for 1 ½ hrs **(c)**   64 mph for 3 ½ hrs

    (d)   60 mph for 3·5 hrs **(e)**   70 mph for 1·5 hrs **(f)**   42 mph for 2·5 hrs

    (g)   62 mph for 4 ½ hrs **(h)**   38 mph for 2 ½ hrs **(i)**   54 mph for 1 ½ hrs

    (j)   70 mph for 2·4 hrs **(k)**   48 mph for 3·5 hrs **(l)**   60 mph for 4·2 hrs

3.   Calculate the distance travelled for each journey below. *Remember the working and the units !*

How far have you gone if you travel for .....

    (a)   4 hours at a speed of 50 km/h?

    (b)   6 hours at a speed of 65 mph?

    (c) $2\frac{1}{2}$ hours at a speed of 87 km/h?

    (d)   40 minutes at a speed of 300 metres per minute?   (answer in kilometres)

    (e)   30 minutes at a speed of 48 mph?

4.   A plane flies at a maximum speed of 460 km/h.

    (a)   How far will it travel in 7 hours at maximum speed ?

    (b)   The pilot wants to fly to Rio, a distance of 5900 km.

        Can he complete the journey within 13 hours? Explain your answer.

5. A luxury cruiser has a maximum speed of 28 km/h.
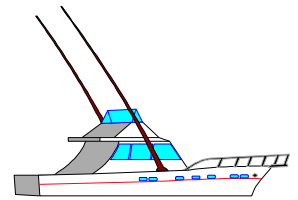
(a) How far can the boat sail in $3\frac{1}{4}$ hours at top speed?

(b) On a journey from one island to another the cruiser has to navigate between two reefs, breaking the crossing into three stages.

Stage 1 : 2 hours at half-speed.

Stage 2 : $4\frac{1}{2}$ hours at full speed.

Stage 3 : 3 hours at one-quarter speed.

Calculate the total distance travelled on the journey.

EXTENSION – finding Speed and Time

$$\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{Time}}$$

1.   Calculate the speed, in km/h, of a car travelling :

    (a)   480 km in 8 hrs   **(b)**   350 km in 7 hrs   **(c)**   240 km in 3 hrs

    (d)   260 km in 4 hrs   **(e)**   500 km in 5 hrs   **(f)**   432 km in 6 hrs

    (g)   92km in 2 hrs   **(h)**   228 km in 3 hrs   **(i)**   224 km in 4 hrs

    (j)   195 km in 3 hrs   **(k)**   332 km in 4 hrs   **(l)**   357 km in 7 hrs

2.   Calculate the speed, in mph, of a car travelling:

    (a)   125 mls in 2 ½ hrs   **(b)**   96 mls in 1 ½ hrs   **(c)**   287 mls in 3 ½ hrs

    (d)   114 mls in 1 ½ hrs   **(e)**   288 mls in 4 ½ hrs   **(f)**   165 mls in 2 ½ hrs

    (g)   306 mls in 4·5 hrs   **(h)**   135 mls in 2·5 hrs   **(i)**   57 mls in 1·5 hrs

    (j)   210 mls in 3·5 hrs   **(k)**   264 mls in 5·5 hrs   **(l)**   105 mls in 2·5 hrs

$$\textbf{Time} = \frac{\textbf{Distance}}{\textbf{Speed}}$$

3.   Calculate the time taken, in hours, by a car travelling:

    (a)   480 km at 80 km/h   **(b)**   720 km at 60 km/h   **(c)**   640 km at 64 km/h

    (d)   405 km at 45 km/h   **(e)**   285 km at 95 km/h   **(f)**   315 km at 63 km/h

    (g)   152 km at 76 km/h   **(h)**   564 km at 94 km/h   **(i)**   462 km at 66 km/h

    (j)   294 km at 98 km/h   **(k)**   553 km at 79 km/h   **(l)**   344 km at 86 km/h

4.   Calculate the time taken, in hours, by a car travelling

    (a)   480 mls at 60 mph   **(b)**   350 mls at 70 mph   **(c)**   400 mls at 40 mph

    (d)   440 mls at 55 mph   **(e)**   282 mls at 47 mph   **(f)**   273 mls at 39 mph

    (g)   160 mls at 64 mph   **(h)**   175 mls at 50 mph   **(i)**   99 mls at 66 mph

    (j)   144 mls at 60 mph   **(k)**   320 mls at 50 mph   **(l)**   319 mls at 58 mph

Time Intervals (12 hour time)

1.   Calculate the number of hours between:

      (a)   3 a.m. and 7 a.m.   **(b)**   2 p.m. and 8 p.m   **(c)**   8 a.m. and 11 a.m.

      (d)   2 a.m. and 10 a.m.   **(e)**   1 p.m. and 11 p.m   **(f)**   9 a.m. and 10 a.m.

      (g)   9 a.m. and 1 p.m.   **(h)**   7 a.m. and 3 p.m   **(i)**   5 a.m. and 2 p.m.

      (j)   10 a.m. and 6 p.m.   **(k)**   8 a.m. and 8 p.m   **(l)**   11 a.m. and 7 p.m.

2.   Calculate the number of hours and minutes between:

      (a)   2 a.m. and 5.30 a.m.   **(b)**   7.15 p.m. and 9.30 p.m

      (c)   12.30 p.m. and 4 p.m.   **(d)**   2.15 a.m. and 3.45 a.m.

      (e)   8.30 p.m. and 10.45 p.m   **(f)**   10 a.m. and 12.45 p.m.

      (g)   7.30 a.m. and 9.15 a.m.   **(h)**   1.30 p.m. and 8.15 p.m

      (i)   10.30 a.m. and 4.45 p.m.   **(j)**   5 a.m. and 2.15 p.m.

      (k)   7.30 a.m. and 6.15 p.m   **(l)**   11.15 a.m. and 12.45 p.m.

3.   Calculate the number of hours and minutes between:

      (a)   10 p.m. and 3 a.m.   **(b)**   7 p.m. and 9 a.m   **(c)**   8 p.m. and 11 a.m.

      (d)   2 p.m. and 10 a.m.   **(e)**   11 p.m. and 8 a.m   **(f)**   9 p.m. and 2 a.m.

      (g)   10.30 p.m. and 1.30 a.m.   **(h)**   7.30 p.m. and 2.45 a.m

      (i)   9.30 p.m. and 12.30 a.m.   **(j)**   10.15 p.m. and 6.30 a.m.

      (k)   8.45 p.m. and 9 a.m   **(l)**   10.30 p.m. and 2.15 p.m.

4.   Jamie leaves his house at 8.15 a.m and arrives at school at 8.45 a.m. How long does it take him to travel to school?

5.   Kathleen is a nurse. She begins her shift at 10.15 p.m and finishes at 6.45 a.m.

      How many hours and minutes does she work?
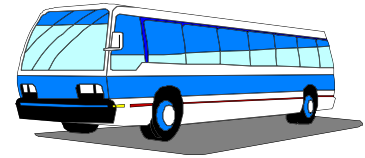
6.   Shakeela is a salesperson. She leaves home at 11.45 a.m. to keep an appointment at 1.15 p.m.

      How long does she have to make her journey?

7. The overnight bus to London leaves Glasgow at 10.15 p.m. and arrives in London at 7 a.m.

How long does the journey take?

8. The Beepee garage shop is open from 6.30 a. m. to 10.15 p.m.

How long is it open for, in hours and minutes?

9. What time will it be?

(a)	16 minutes after 1.36 p.m.	**(b)**	35 minutes after 2.34 p.m.
(c)	12 minutes after 4.25 a.m.	**(d)**	10 minutes after 5.40 a.m.
(e)	24 minutes after 11.36 p.m.	**(f)**	38 minutes after 6.45 a.m.

What time was it? ....

10.
(a)	10 minutes before 3.15 p.m.	**(b)**	25 minutes before 8.20 p.m.
(c)	20 minutes before 5.45 a.m.	**(d)**	50 minutes before 4.05 a.m.
(e)	14 minutes before 2.30 p.m.	**(f)**	38 minutes before 2.15 a.m.

11.
(a)	1 hour after 2.30 p.m.	**(b)**	2 hour after 9.15 a.m.
(c)	4 hours after 3.15 p.m.	**(d)**	3 hours after 5 a.m.
(e)	16 hours after 5.29 p.m.	**(f)**	12 hours after 6 p.m.

12.
(a)	2 hours before 11.45 a.m.	**(b)**	6 hours before 12.35 p.m.
(c)	9 hours before 7.45 a.m.	**(d)**	12 hours before 2.40 p.m.
(e)	5 hours before 4.30 a.m.	**(f)**	7 hours before 5.30 p.m.

13.
(a)	1 hour 30 mins after 2.30 p.m.	**(b)**	2 hours 15 mins after 3.45 a.m.
(c)	2 hours 20 mins after 8.45 p.m.	**(d)**	5 hours 10 mins after 4.56 p.m.
(e)	6 hours 45 mins after 10.35 a.m.	**(f)**	2 hours 30 mins after 11.50 p.m.

14.
(a)	2 hours 15 mins before 4.30 p.m.	**(b)**	6 hours 10 mins before 6.45 a.m.
(c)	4 hours 30 mins before 4.15 a.m.	**(d)**	7 hours 53 minutes before 9.45 p.m.
(e)	13 hours 30 mins before 8.15 p.m.	**(f)**	21 hours 12 minutes before 11.30 p.m.

15. Mandy has an appointment with the hairdresser in Glasgow at 2.30 pm. She wants to arrive 15 minutes before that.

(a) When will she arrive at the hairdresser?

(b) It takes 40 mins to get into town on the train and 10 minutes from her house to the station. When should she leave home to get a train which leaves at 1 pm?

(c) Her journey home will take 55 minutes altogether and she must be home by 5 pm.

When is the latest time she could leave Glasgow to go home?

Time Intervals (24 hour time)

1. Calculate the number of minutes between:

    (a)   2305 and 2340   **(b)**   1530 and 1555   **(c)**   1543 and1603

    (d)   1432 and 1456   **(e)**   1749 and 1823   **(d)**   2235 and 2307

2. Calculate the number of hours between:

    (a)   0100 and 1300   **(b)**   1235 and 1635   **(c)**   0915 and 2115

    (d)   0350 and 2150   **(e)**   0730 and 2230   **(d)**   1035 and 2335

3. Calculate the number of hours and minutes between:

    (a)   1215 and 1425   **(b)**   0450 and 0710   **(c)**   1845 and 2030

    (d)   0755 and 2315   **(e)**   0315 and 1835   **(f)**   1235 and 1510

4. What time will it be?

    (a)   12 minutes after 0936   **(b)**   50 minutes after 1306

    (c)   35 minutes after 1635   **(d)**   15 minutes after 1750

    (e)   53 minutes after 1130   **(f)**   18 minutes after 1843

5. What time was it?

    (a)   15 minutes before 1325   **(b)**   40 minutes before 1250

    (c)   35 minutes before 1550   **(d)**   46 minutes before 2336

    (e)   55 minutes before 2120   **(f)**   23 minutes before 1208

6. What time will it be?

    (a)   2 hours after 2100   **(b)**   3 hours after 1408

    (c)   9 hours after 2115   **(d)**   12 hours after 1523

    (e)   5 hours after 0231   **(f)**   18 hours after 0435

7.   What time was it?

(a)   3 hours before 2300

(b)   4 hours before 1634

(c)   11 hours before 2109

(d)   13 hours before 1130

(e)   15 hours before 1750

(f)   23 hours before 2106

8.   What time will it be?

(a)   3 hours 15 minutes after 0445

(b)   8 hours 50 mins after 0545

(c)   12 hours 10 minutes after 1055

(d)   4 hours 55 minutes after 1352

(e)   6 hours 55 minutes after 1243

(f)   2 hours 34 minutes after 1448

9.   What time will it be?

(a)   1 hour 20 mins before 1240

(b)   3 hours 45 mins before 1550

(c)   6 hours 20 mins before 1800

(d)   2 hours 17 mins before 1214

(e)   5 hours 55 mins before 2345

(f)   13 hours 23 minus before 1502

10.   Kevin wants to catch a bus that leaves at 1130. If it takes 10 mins to walk to the bus stop, when should he leave the house?

11.   Barry has to travel to work by bus. It takes him 5 minutes to walk to the bus stop and 30 minutes to get to work. He likes to arrive at work 15 minutes early.

When should he leave his house in order to get to work
for starting at 8 am?

12.   **(a)**   A film on TV starts at 1930 and lasts for 2 hours 45 minutes?

When will it end?

(b)   Kelly wants to watch a programme which lasts for 1 hour 20 minutes and finishes at 1845. She doesn't get home from work until 1730.

Will she be on time to see the start of the programme?
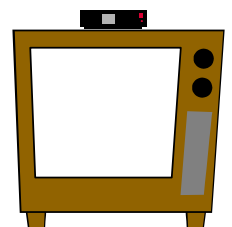
TIMETABLES(1)

Alison attends Anywhere High School. Here is her timetable. School starts at 9·00 am.

	R	1	2		3	4		5	6
	E	9.10-10.05	10.05-11.00		11.15-12.05	12.05-12.55		1.40-2.35	2 .35-3.30
Monday	G	MATHS	ENGLISH	B	FRENCH	HISTORY	L	CRAFT	MUSIC
Tuesday		PE	MATHS	R	DRAMA	IT	U	ENGLISH	HE
Wednesday		FRENCH	ART	E	PSD	RE	N	MATHS	ENGLISH
Thursday		ENGLISH	HISTORY	A	ART	IT	C	SCIENCE	CRAFT
Friday		FRENCH	SCIENCE	K	MATHS	PE	H	MUSIC	DRAMA

Answer these questions from the timetable above:

1. **(a)** How many Maths lessons does Alison have each week?

  (b) Is this the same as you?
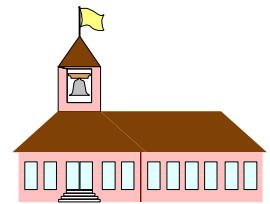
2. Alison has an appointment with her Guidance Teacher at 10.15 on Wednesday. Which subject is she going to miss?

3. At 12.30 on Friday she has a Violin lesson. Which period was this?

4. Which subject is Alison in on Wednesday at 2.45 pm?

5. Alison was not feeling well one day and had to go home at the end of lunchtime.

  At what time did she leave to go home?

6. On Monday her bus was late and she arrived in school at 10.30 a.m.. Which subject did she have to go to after she had signed in?

7. How many minutes does the interval last?

8. How long is lunchtime?

9. **(a)** 15 minutes into lunchtime, Alison goes to Band practise. At what time is this?

(b) The practise finishes 5 minutes before the end of lunchtime. How many minutes does it last?

10. Alison arrives at school 15 minutes before registration starts. When does she get to school?

11. The school bus leaves 10 minutes after the end of period 6. At what time does it leave?

12. **(a)** How many minutes does Alison spend in registration each day?

(b) How many minutes is this for the whole week?

13. **(a)** How many minutes of PE does Alison have each week?

(b) How many hours and minutes is this?

14. **(a)** How many minutes of English does she have each week?

(b) How many hours and minutes is this?

15. Copy this table into your jotter and fill in the blanks to show how many minutes each period lasts.

Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
55 minutes			50 minutes		

16. How many hours and minutes is it from the beginning of Period 5 until the end of the school day?

17. How many minutes is Alison in class during Periods 1, 2, 3 and 4 altogether?

18. How many hours and minutes is it from the beginning of the day at 9.00 am until the end of the day at 3.30 pm?

19. How many hours and minutes are spent in school each week including intervals and lunchtimes?

20. **(a)** How many hours and minutes do the intervals take up each week?

(b) How many hours and minutes do the lunchtimes take up each week?

(c) How many hours and minutes are spent in class each week?

21. **(a)** Alison leaves home at 8.15 in the morning and arrives home at 4.20 in the afternoon.

How many hours and minutes is she away from home altogether each day?

(b) How many hours and minutes is this each week?
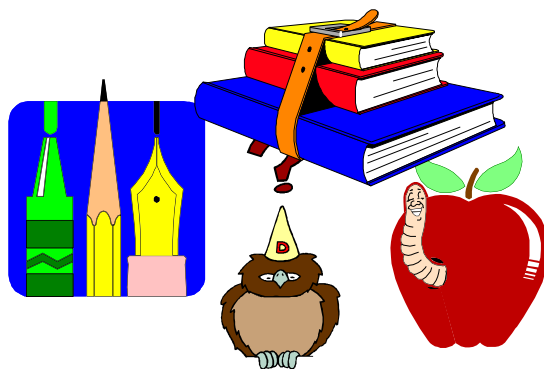
TIMETABLES(2)

Here is a list of the TV programmes on BBC 1 and ITV 1 one Sunday.
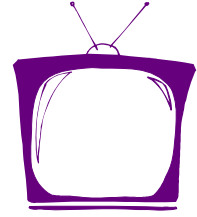
BBC 1

12.00	Politics
1.00	Eastenders
2.25	Sportscene
5.10	News
5.35	Songs of Praise
6.15	Last of the Summer Wine
6.45	Antiques Roadshow
7.30	Holiday Swaps

ITV 1

12.00	Eye to Eye
12.30	Seven Days
1.00	News
1.55	Scotland Today
2.00	Driving Miss Daisy
3.55	That's Esther
4.25	Scotsport
6.10	Gaelic Programme

Answer these questions from the information given above:

1.   Copy and fill in this table to show which programme is on at the times given.

TIME	BBC 1	ITV 1
1.00		
12.00		
6.15		
5.45		
2.30		

2.   Gordon finished his homework at 2.45.

   (a)   What programme could he watch on BBC 1 at that time?

   (b)   How many minutes had the film on ITV 1 been on at that time?

3. Sally wanted to see Songs of Praise but didn't switch on until 15 minutes after it had started.

    (a) When did she switch on?

    (b) What was on ITV 1 at the same time?
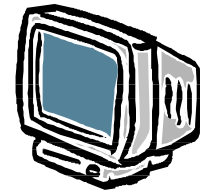
4. Holly wanted to watch Driving Miss Daisy and switched on 20 minutes early.
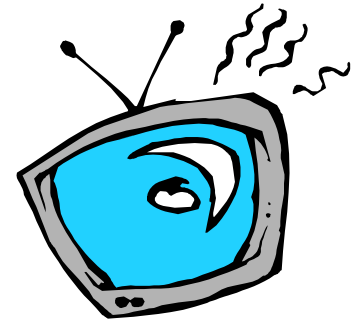
    (a) What was on ITV 1 then?

    (b) What was on BBC 1?

5. Peter watched Seven Days on ITV and then switched over to BBC 1.

    (a) Which programme was coming on then?

    (b) What was on ITV by the time this programme ended?

6.   **(a)** For how many minutes did the News on BBC 1 last?

    (b) What about the news on ITV 1?

    (c) How many minutes of news altogether?

    (d) How many hours and minutes is this?

7.   **(a)** How many minutes did Antiques Roadshow last?

    (b) How many minutes did Last of the Summer Wine last?

    (c) How long is this altogether? [Answer in hours and minutes].

8. Stewart watched Eye to Eye on ITV 1 and then planned to watch Eastenders on BBC 1.

    (a) How long would he have to wait between programmes?

    (b) What else could he watch on ITV 1 to pass the time?

9. David wanted to watch Eastenders and then the film, Driving Miss Daisy. How many minutes of the film did he miss?

10. Jenny was going out so decided to tape her favourite programmes.

She set up her video to record: Driving Miss Daisy, Songs of Praise and The Antiques Roadshow,

(a) Write down how long each programme lasted.

(b) How long did the three programmes last altogether?

11. **(a)** How many hours and minutes did Scotsport last?

(b) How many hours and minutes did Sportscene last?

(c) Which was the longer sports programme?

(d) How many hours and minutes of sport were on altogether?

TIMETABLES (3)

The School Outdoor Club were going away for a weekend. Here is the programme of activities for Saturday.

6·00 am	5 mile run to waken up!
8·00	BREAKFAST
8·30	Planning the route for a midnight hike
9·00	Abseiling
11·00	BREAK
11·30	Canoeing
1·15	LUNCH
2·15	Learn Mountaineering Skills
3·00	Leisure Swimming
5·00	An introduction to Bungee Jumping
7·00	DINNER
9·30	Set off for Midnight Hike
1·30 am	Return from hike and go to bed.

Answer the following questions from the details given in the programme sheet:

1.   How long did they spend: **(a)**   Planning the Midnight Hike

                                (b)   Swimming

                                (c)   Learning Mountaineering skills

                                (d)   Canoeing

                                (e)   On the midnight hike?

2.   How long did the morning break last?

3.   How long did they get for lunch and dinner altogether?

4.   All the members had to arrive at the canoeing 15 minutes before the time given.

     (a)   When did they have to arrive?

     (b)   If they left 20 minutes after it ended, when did they leave?

     (c)   How much of lunch time was left?

5.   Malcolm arrived at 10.45 and joined in the activity at that time.

     (a)   What activity did he join?

     (b)   How many minutes late was he?

     (c)   How long was left of this activity?

     (d)   What activities had he missed?

6.   The instructor for the Bungee Jumping arrived 30 minutes after the starting time.

     (a)   At what time did he arrive?

     (b)   How long was left?

     (c)   If he stayed for the full 2 hours, when did the Bungee Jumping Session end?

7. Joseph, Keiron and Daniel decided to have a competition to see who could complete the hike in the shortest time.

They all set out together at 9.30 but came back at different times. Here is a list of when they arrived back.

Joseph: 12.45 am

Kieron: 15 minutes before Joseph

Daniel: 30 minutes after Joseph.

Copy and complete this table:

NAME	LEAVING TIME	ARRIVING BACK TIME	TOTAL TIME TAKEN
Joseph	9.30	12.45	
Kieron	9.30		
Daniel	9.30		

(a) Who arrived back first?

(b) Who was last?

(c) How many minutes after the winner?

Ratio(1)

1. **(a)** Divide £50 in the ratio $3:7$. **(b)** Divide 80kg in the ratio $3:7$.

   (c) Divide £35 in the ratio $5:2$. **(d)** Divide 240 g in the ratio $4:1$.

2. **(a)** Three boys, Harry, James and Bill divide £120 in the ratio $1:3:8$
   How much does each boy get?

   (b) Three girls, Susan, Beth and Jill divide £56 in the ratio $2:5:7$.
   How much does each girl get?

3. Graeme and Fred invest £3400 in a new company.

   (a) If the money each of them put in was in the ratio 3 : 7 , how much did Fred invest in the new company?

   (b) They decide to split the profits in the same ratio as their investment.

   If they made £6200 profit, how much of the profit will Graeme get?

4. The ratio of boys : girls in a class is 4 : 5. If there are 27 pupils in the class, how many girls are there?

5. **(a)** In a piece of jewellery the ratio of gold to silver is 5 : 2.

   If the jewellery contains 56g of gold, what weight of silver does it contain?

   (b) An lottery win was shared between three brothers, Dave, Frank and Pat, in the ratio 1 : 3 : 4.

   If Pat received £824, how much did each of the other two brothers receive?

6. Two farmers, Bill and Dan, decided to split a herd of cows in the ratio 5 : 7.

   (a) If Dan's share was 42 cows, how many cows did Bill get ?

   (b) How many cows were there altogether ?

   (c) A third farmer, George, came along and the three farmers decided to split the herd in the ratio (B : D : G) 3 : 4 : 1.

   How many cows will each farmer get?
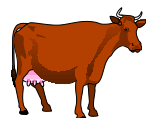
Ratio(2)

1. **(a)** Divide £48 in the ratio 3:5.   **(b)** Divide £100 in the ratio 7:3.

   (c) Divide £56 in the ratio 1:6.   **(d)** Divide £50 in the ratio 4:1.

   (e) Divide £120 in the ratio 5:3.   **(f)** Divide £75 in the ratio 8:7.

   (g) Divide £36 in the ratio 4:5.   **(h)** Divide £240 in the ratio 5:7.

2. **(a)** Three boys divide £88 in the ratio 1:3:7. How much does each boy get?

   (b) Three girls divide £48 in the ratio 2:3:11. How much does each girl get?

   (c) Three men divide £60 in the ratio 3:4:5. How much does each man get?

   (d) Three girls divide £96 in the ratio 1:2:5. How much does each girl get?

3. John and David inherit £3400. If they divide the money in the ratio 2 : 3, how much does each person receive?

4. The ratio of boys : girls in a class is 3 : 5. If there are 32 pupils in the class, how many girls are there?

5. The ratio of sand : cement in a certain concrete is 7 : 4. If a cement mixer has been filled with 33 bags, how many of the bags were sand?

6. **(a)** The ratio of cats : dogs in an animal hospital is 1 : 5.

   If there are 8 cats, how many dogs are there?

   (b) In a school show the ratio of girls : boys is 2 : 1.

   If there are 24 girls, how many boys are there?

   (c) In a necklace the ratio of diamonds : emeralds is 3 : 4.

   If there are 16 emeralds, how many diamonds are there?

   (d) An estate was shared between three brothers, Tom, John and Dave, in the ratio 2 : 3 : 5.

   If Tom received £2400, how much did each of the other two brothers receive?

7.   Three friends, Xena,Gabrielle and Joxar, have found a treasure chest full of gold coins.

They decide to split the coins in the ratio 5 : 3 : 1.

(a)   If Gabrielle was to receive 24 coins, how many coins would the others get?
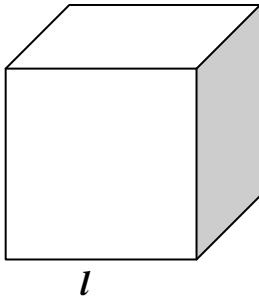
(b)   How many coins are there altogether?

(c)   Before they can share out the coins, Calisto arrives, and persuades
the friends to split the coins in the ratio (X : G : J : C) 9 : 5 : 4 : 6 .

How many coins will each person now receive?

Volume of Cube and Cuboid

1.

l

Volume of a cube , $V = l^3$

Calculate the volume of a cube with

(a)	$l = 3$cm	**(b)**	$l = 7$cm
(c)	$l = 2$cm	**(d)**	$l = 4$cm
(e)	$l = 5$cm	**(f)**	$l = 10$cm
(g)	$l = 6$cm	**(h)**	$l = 9$cm
(i)	$l = 8$cm	**(j)**	$l = 14$cm
(k)	$l = 11$cm	**(l)**	$l = 20$cm

2.

h

b

l
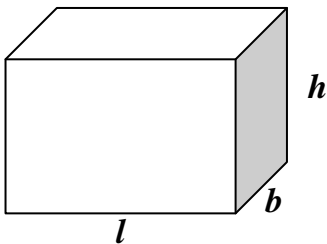
Volume of a cuboid , $V = l \times b \times h$

Calculate the volume of a cuboid with

(a) $l = 5$cm, $b = 4$cm, $h = 3$cm

(b) $l = 7$cm, $b = 3$cm, $h = 2$cm

(c) $l = 10$cm, $b = 8$cm, $h = 3 \cdot 5$cm

(d) $l = 4$cm, $b = 4$cm, $h = 3$cm

(e) $l = 20$mm, $b = 8$mm, $h = 10$mm

(f) $l = 5 \cdot 5$cm, $b = 1 \cdot 4$cm, $h = 7$cm

(g) $l = 0 \cdot 2$m, $b = 1$m, $h = 1 \cdot 8$m

(h) $l = 4 \cdot 5$cm, $b = 2 \cdot 5$cm, $h = 4$cm

(i) $l = 2$cm, $b = 4$cm, $h = 1$m

(j) $l = 15$cm, $b = 80$mm, $h = 5$cm

3. Find the volume of a rectangular-based prism for the values of *l*, *b* and *h* given.
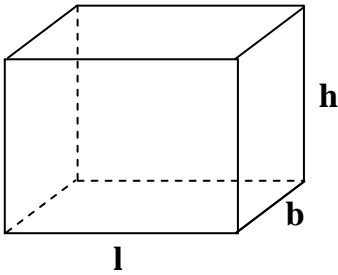
(a) $l = 6$cm $b = 4$cm $h = 5$cm

(b) $l = 8$cm $b = 3$cm $h = 6$cm

(c) $l = 3$m $b = 1$m $h = 2$m

(d) $l = 18$cm $b = 12$cm $h = 10$cm

(e) $l = 7$cm $b = 7$cm $h = 7$cm

(f) $l = 7 \cdot 5$cm $b = 4$cm $h = 12$cm

(g) $l = 8 \cdot 3$cm $b = 2 \cdot 7$cm $h = 10$cm

(h) $l = 12 \cdot 8$cm $b = 6 \cdot 5$cm $h = 4 \cdot 3$cm

(i) $l = 150$mm $b = 40$mm $h = 85$mm

(j) $l = 14 \cdot 5$cm $b = 14 \cdot 5$cm $h = 34$cm

4.
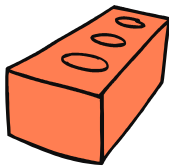
Find the volume of a concrete block measuring 36cm by 18cm by 12cm.

5. A classroom measures 9m by 7m by 3m.

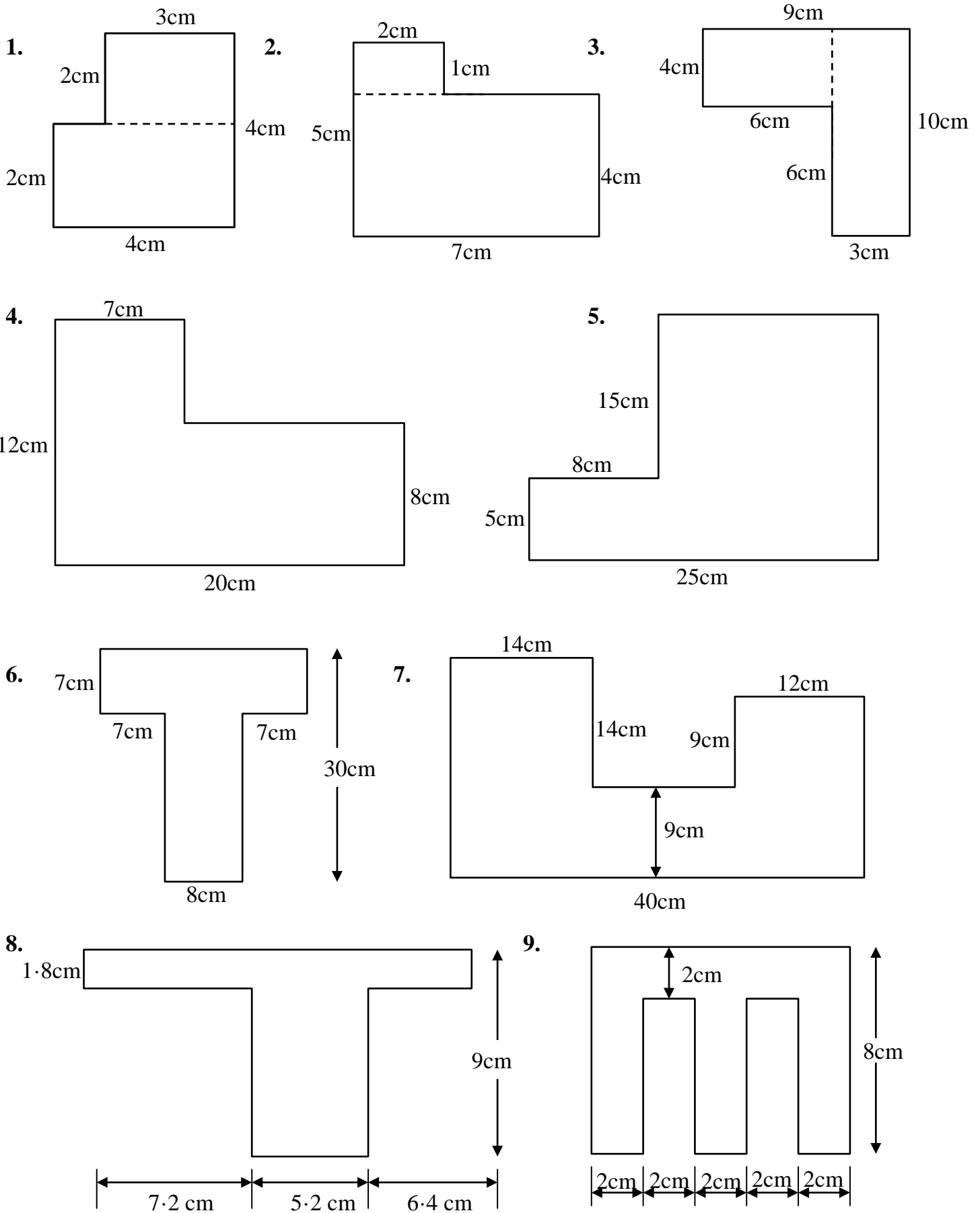How many pupils can it hold if each pupil need 6m^3 of air space?

6.

(a) Find the volume of a swimming pool which measures 1500cm by 1000cm by 200cm.

(b) If 1litre $= 1000$cm^3, calculate the number of litres of water that the pool will hold.
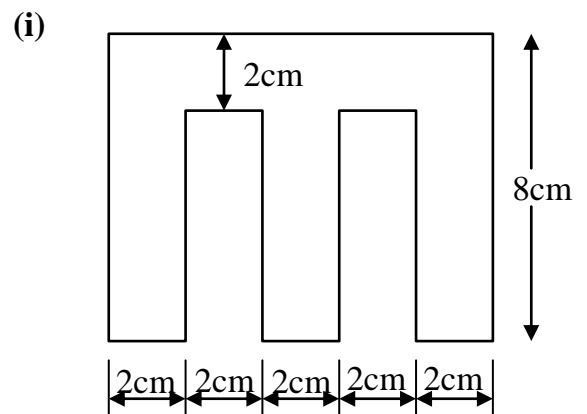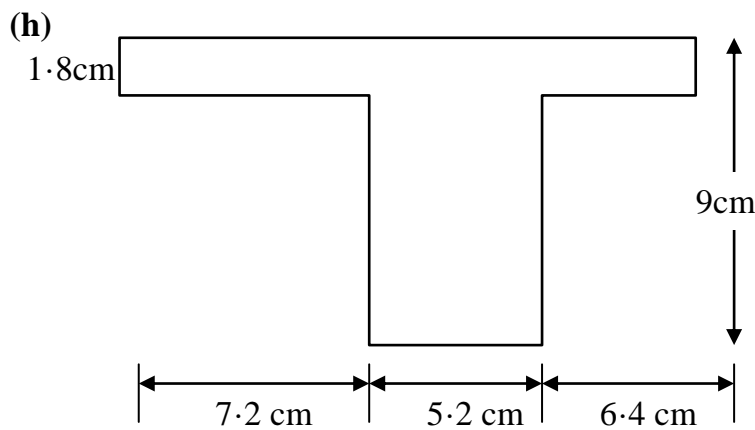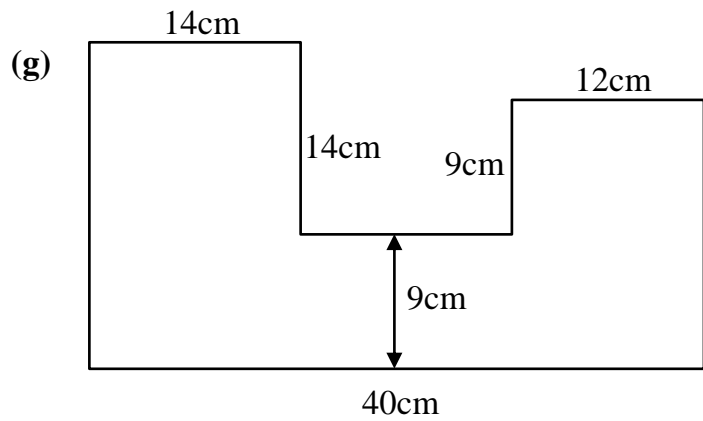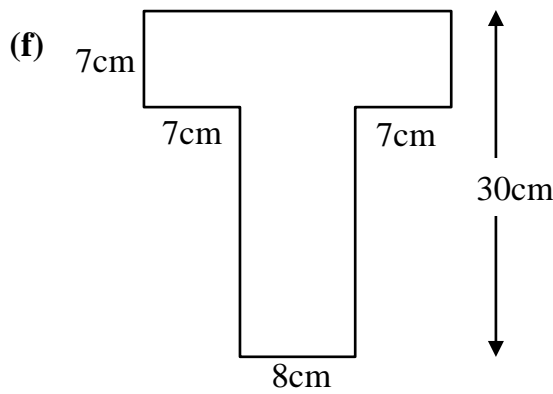
Finding the area of a shape

Find the area of each of the shapes shown below.

1.

3cm

2cm

2cm

4cm

2cm

4cm

2.

2cm

1cm

5cm

4cm

7cm

3.

9cm

4cm

6cm

10cm

6cm

3cm

4.

7cm

12cm

8cm

20cm

5.

15cm

8cm

5cm

25cm

6.

7cm

7cm   7cm

30cm

8cm

7.

14cm

14cm

9cm

12cm

9cm

9cm

40cm

8.

1·8cm

9cm

7·2 cm   5·2 cm   6·4 cm

9.

2cm

2cm

8cm

2cm 2cm 2cm 2cm 2cm

Find the perimeter of a shape

1. Find the perimeter of each of the shapes shown below.

(a)
3cm
2cm
2cm
4cm
2cm
4cm

(b)
2cm
1cm
5cm
4cm
7cm

(c)
9cm
4cm
6cm
10cm
6cm
3cm

(d)
7cm
12cm
8cm
20cm

(e)
15cm
8cm
5cm
25cm

(f)
7cm
7cm   7cm
30cm
8cm

(g)
14cm
14cm
9cm   12cm
9cm
40cm

(h)
1·8cm
9cm
7·2 cm   5·2 cm   6·4 cm

(i)
2cm
8cm
2cm 2cm 2cm 2cm 2cm

2.   Find the perimeter of each of the shapes shown below.

(a)

19·8cm
27cm
13cm
14cm

(b)

89cm
80cm
25cm
70cm

(c)

24cm
24cm
35·4cm
50cm

(d)

2·4m
8·4cm
17·2cm
3·8m
25m

(e)

35·2cm
35·2cm
40m
20m
20m
18m
15m
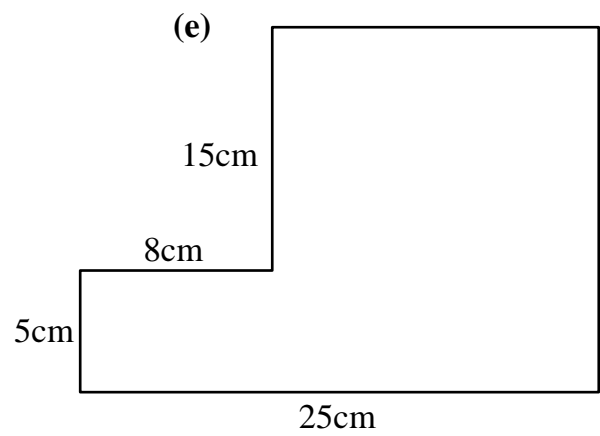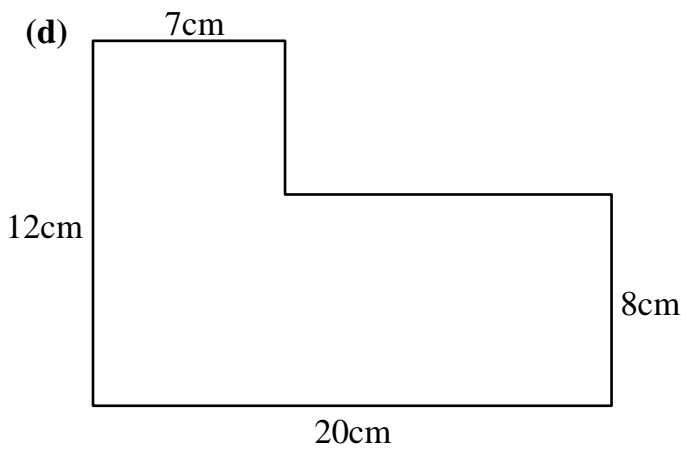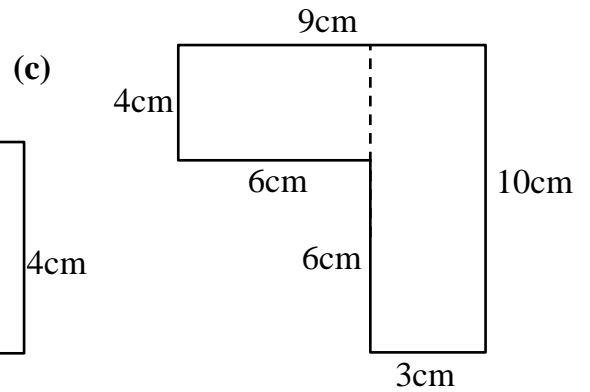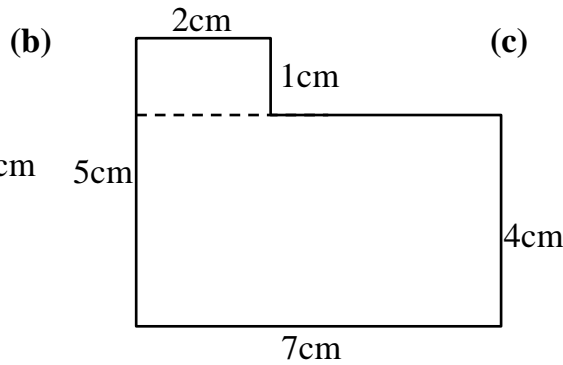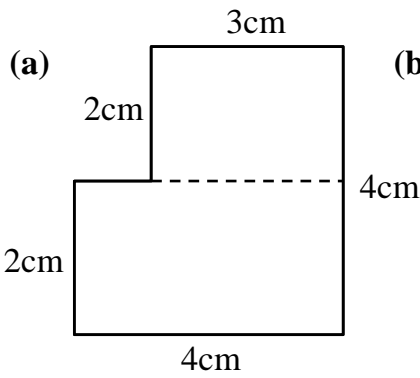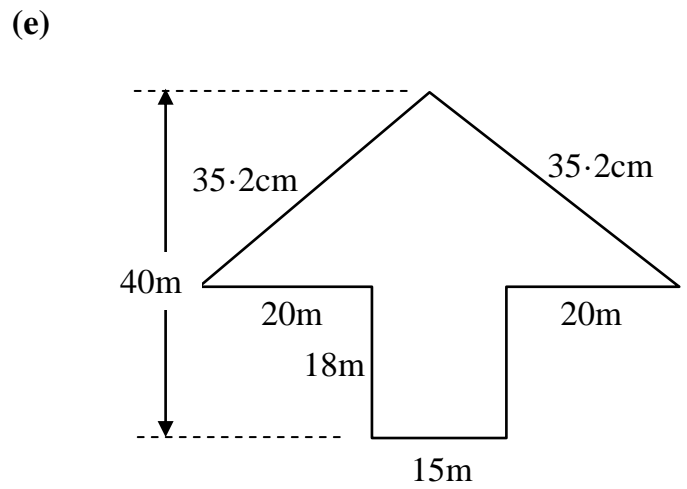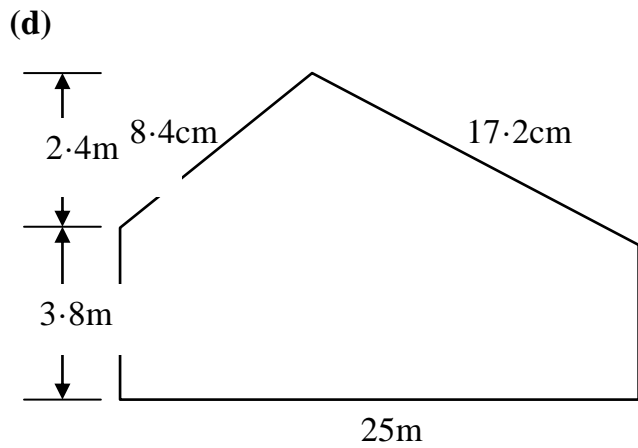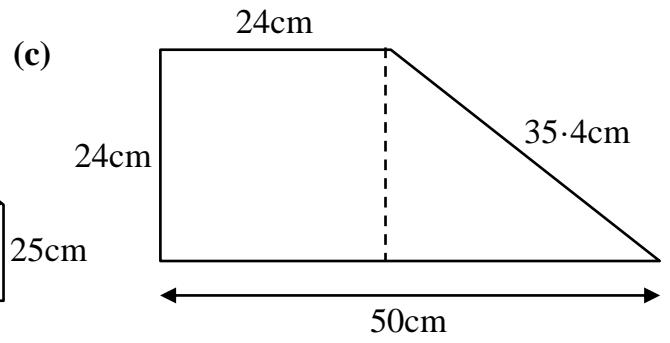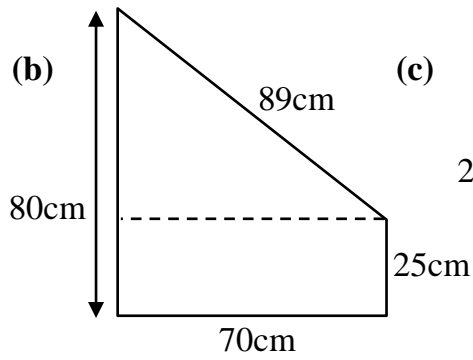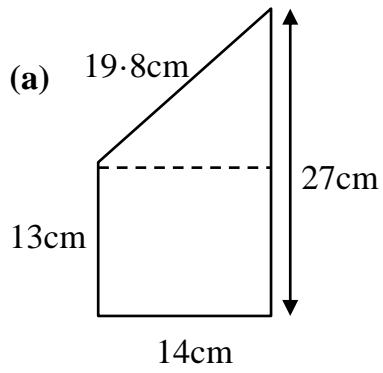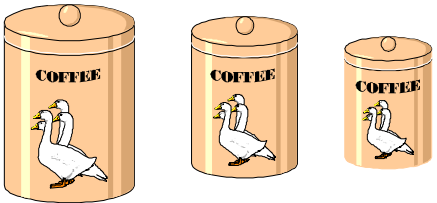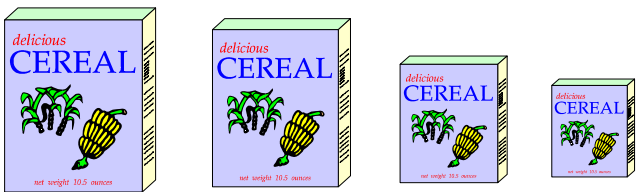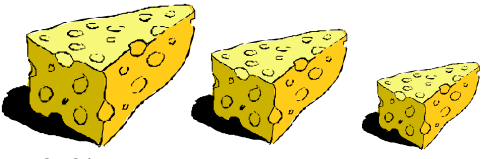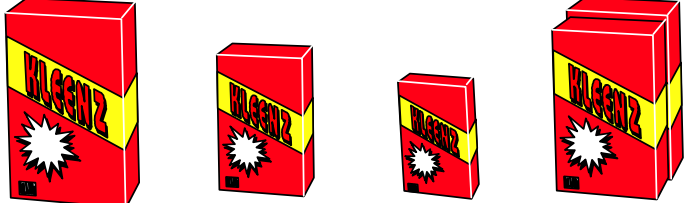
Calculate rate

1. Find the cost of one of each item in the examples below.

   (a) 7 books cost £31.43

   (b) 5 calculators cost £17.50

   (c) 4 bars of chocolate cost £1.28

   (d) 9 T-shirts cost £81

   (e) 12 eggs cost £1.80

   (f) 3 metres of cloth cost £25.50

   (g) 6 bottles of cola cost £5.34

   (h) 8 pens cost £1.52

2. **(a)** A train travels 325miles in 5 hours. How far does it travel in 1 hour?

   (b) A car travels 144km on 6 litres of petrol. How far will it go on 1 litre?

   (c) A factory makes 36400 cars per year. How many does it make in 1 week?

   (d) A typist can type 840 words in 1 hour. How many can she type in 1 minute?

   (e) A family uses 21 pints of milk in a week. How many do they use a day?

   (f) 10 apples weigh 2kg. What does one apple weigh?

   (g) A man earns £28.80 for an 8-hour day. What does he earn in an hour?

   (h) A car travels 72km in an hour. How far does it travel in 1 minute?

3. **(a)** 3 kg of carrots cost £1.44. 5kg of carrots cost £2.30. Which pack is the best value?

   (b) One car travels 110 miles in 2 hours and another travels 270 miles in 5 hours. Which car is the faster?

   (c) John earns £278.61 for working 37 hours. Jim earns £339.30 for working 45 hours. Who earns the higher rate per hour?

   (d) Paula can type 3300 words in 4 hours. Christeen one can type 2469 words in 3 hours. Who types more words per hour?

   (e) 5 chocolates éclairs cost £4.25. 3 meringues cost £2.70. Which cake is the cheaper?

   (f) 6 teddies cost £108. 7 dolls cost £125.30. Which one is the cheaper?

   (g) In a factory, machine A can produce3600 packets of sweets in 3 hours and machine B produces 7875 packets in 7 hours. Which machine works the faster?

Best Buy

Which item is the best buy in each group below?

(a)

3 litres
£1.68

2 litres
£1.20

1 litre
£0.62

(b)

3 litres
£1.74

1·5 litres
84p

0·8 litres
48p

(c)

550 g
£8.20

350 g
£5.60

200 g
£3.60

(d)

1 kg
£1.80

750 g
£1.20

500 g
£1.00

200 g
44p

(e)

0·7 litre
40p

2 litres
£1.39

4 litres
£2.56

(f)

150ml
£1.20

250ml
£1.75

500ml
£2.50

(g)

0·8kg
£4.20

0·5kg
£2.80

0·3kg
£1.59

(h)

600 g
£2.50

320 g
£1.40

200 g
£1.05

(i)

6 kg
£10.50

2·5kg
£4.80

1·5kg
£3.06

Twin pack
(2 × 3·5kg)
£11.90

(j)

650ml
£1.99

250ml
80p

550ml
£1.60

950ml
£2.95

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Direct Proportion

1.　**(a)**　One ream of paper contains 500 sheets. How many sheets in 4 reams?

　　　(b)　Car parking charges are 30p per hour. What is the cost for 3 hours?

　　　(c)　1 cm^3 of lead weighs 11·3 g. What is the weight of 6cm^3?

　　　(d)　A packet of sweets contains 182 kcal. How many kcal in 5 packets of sweets?

　　　(e)　On a plan 1 cm represents 12 metres. How many metres does 7 cm represent?

　　　(f)　One bottle contains 350 ml. How much will 12 bottles contain?

　　　(g)　One ice-cream cone costs 80p. What will 5 cost?

　　　(h)　£1 can be exchanged for 1.14Euros. How many francs will you get for £10?

2.　**(a)**　A machine a factory fills 840 bottles in 6 hours. How many bottles will it fill in 5 hours?

　　　(b)　 Eggs cost £1.80 per dozen. What would 15 eggs cost?

　　　(c)　90 nails weigh 2 kg. What will 315 nails weigh?

　　　(d)　A car can travel 176 km on 8 litres of petrol. How far can it travel on 5 litres ?

　　　(e)　The width of 6 identical textbooks is 11.4 cm. What is the width of 9 of the same books?

　　　(f)　Daniel earns £143.50 for working a 35 hour week. How much will Stefan earn for a 40-hour week paid at the same rate?

　　　(g)　A hiker walked steadily for 4 hours and covered a distance of 16 km.
How long did he take to cover 12 km?

　　　(h)　It cost £218 to turf a lawn of area 64 m^2. How much would it cost to turf a lawn of area 56 m^2?

　　　(i)　It costs £588 to hire scaffolding for 42 days. How much would it cost to hire the same scaffolding for 36 days at the same rate per day?

　　　(j)　A typist typed 3960 words in 4 ½ hours. How long would it take to type 2860 words at the same rate?

　　　(k)　A typist charges £37.50 for work which took her 6 hours.How much would she charge for 9 hours work at the same rate ?
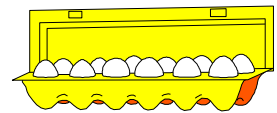
3. A rail journey of 300 miles costs £72. At the same rate per mile,

   (a) What would be the cost of travelling 250 miles?

   (b) How far could you travel for £42?

4. At a steady speed, a car uses 15 litres of petrol to travel 164 km.
   At the same speed, what distance could be travelled if 6 litres of petrol were used?

5. A scale model of a ship is designed so that the mast is 9 cm high and the mast of the original ship is 12 m high.

   The length of the original ship is 27 m. What is the length of the model ship?

6. A ream of paper (500 sheets) is 6·2 cm thick. How thick is a pile of 350 sheets of the same paper?

7. 24 identical mathematics books will take up 60 cm of shelf space.

   How many books will fit into 85 cm?

8. A D.I.Y. enthusiast makes a small coffee table. Below is a list of the cost of materials and the actual amount of materials that he needs.

Materials	*Costs*
4 legs each 40 cm long	2 m costs £3.20
4 stretchers each 80 cm long	3 m costs £2.10
1 top 1·5 square metres	1 square metre costs £1.50
0·75 litre of varnish	1 litre costs £4.80
12 screws	20 screw cost 80p
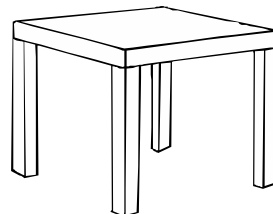
What is the total cost of the materials that are actually used?

Direct Proportion again

1. 300g of flour is used to make 6 cakes. How much flour is needed to make:

   (a) 12 such cakes? **(b)** 3 cakes? **(c)** 9 cakes?

2. Eight bars of chocolate cost £3.36. Calculate the cost of:

   (a) 1 bar of chocolate **(b)** 3 bars **(c)** 11 bars.

3. A stack of six identical books weighs 1·38kg. How much would a stack of 10 books weigh?

   14

4. **(a)** 4 cakes cost £3.12. Find the cost of 9 cakes.

   (b) The height of 12 stacked CD cases is 136·8mm. Calculate the height of 7 such cases.

   (c) A row of 24 staples measures 14·4 mm. How long would a row of 38 staples be?

   (d) The weight of 3 baskets of fruit is 5·4kg. Calculate the weight of 5 baskets.

5. Carpet is priced relative to its area.

   A rectangular carpet measuring 5m by 4m costs £264.

   (a) Calculate the cost for 1 square metre of this carpet. (the cost per sq.m)

   (b) How much would a carpet measuring 8m by 6m cost?

6. A bedroom carpet measuring 4m by 7m costs £180.60.

   How much would the same type of carpet measuring 5m by 8m cost?

7. A car uses 15 litres of petrol to travel 210 miles. How much petrol would the car use for a journey of 378 miles at the same rate of consumption?

8. Fifteen books cost £123. How many books could you buy for £73.80?

9. For £250 you receive 2750 francs. How much would 1364 francs cost you in pounds sterling?

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Hire Purchase

1. For each of the items below, calculate **(i)** the total hire purchase cost

(ii) the extra over the cash price

	Item	Cash Price	Hire Purchase Terms	
			Deposit	**Payments**
(a)	Television Set	£330	£33	12 months @ £28
(b)	Microwave Oven	£118	£15	6 months @ £20
(c)	Music System	£279	£35	18 months @ £15
(d)	Fridge/Freezer	£390	£40	12 months @ £32
(e)	Bedroom Furniture	£510	£50	24 months @ £21.50
(f)	Video Camera	£449	£45	12 months @£35.75
(g)	Golf Clubs	£283	£28	9 months @ £33
(h)	Dining Table & Chairs	£499	£50	18 months @ £27.80

2. A mail order company sells a sofa for £469.95. It offers 3 alternative ways to pay

(i) deposit of £69.95 and 24 monthly payments of £20.50

(ii) deposit of £49.95 and 18 monthly payments of £26.90

(iii) deposit of £39.95 and 12 monthly payments of £39.20
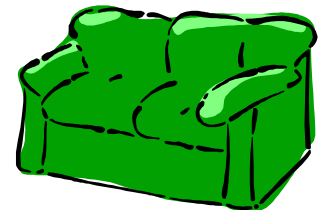
Which is **(a)** the cheapest way to buy the sofa?

(b) the dearest way to buy the sofa?

3. The Osnam family have had new windows installed. They had the choice of paying for them in two different ways.

Option 1: 36 monthly payments of £134.75.

Option 2: a deposit of £1971 then the remainder in equal monthly payments over 2 years.

Both options cost the same in total and they chose Option 2.

Calculate the amount of each payment.

4. For each of the items below, calculate
   i. the deposit
   ii. the total hire purchase cost
   iii. the extra over the cash price

	Item	Cash Price	Hire Purchase Terms	
			Deposit	**Payments**
(a)	Oven	£450	10%	12 months @ £38
(b)	Computer	£780	10%	18 months @ £44
(c)	Bicycle	£195	20%	6 months @ £33.50
(d)	Diamond Ring	£370	15%	12 months @ £31.20
(e)	Carpet	£410	20%	24 months @ £17.40
(f)	3 piece suite	£920	15%	36 months @£26.10
(g)	Car	£3285	25%	48 months @ £69.50
(h)	Fax Machine	£229	10%	9 months @ £25.70

5. A car costing £7200 can be paid for in three ways.

   (i) by cash

   (ii) by hire purchase with a deposit of £2000 and 24 monthly payments of £260

   (iii) by hire purchase with a deposit of 25% and 36 monthly payments of £186

   Calculate the difference between the most and least expensive methods.

6. An Internet TV can be bought for a cash price of £2400.

   It can be paid for by making a deposit of $\frac{2}{5}$ of the cash price followed by 12 **equal** monthly payments.

   Calculate the cost of each payment.

Holiday Money (1)

The following questions use this table of exchange rates, which gives the amount of each currency you will receive in exchange for £1.

Country	Currency	Rate per £
USA	Dollars ($)	$1.55
JAPAN	Yen (¥)	150 ¥
EUROZONE	Euros(€)	1.16 €
AUSTRALIA	Dollars ($)	1.7 $

1. Change each of the following amounts into USA dollars:

   (a) £5   **(b)** £31   **(c)** £462   **(d)** £20

   (e) £44   **(f)** £9   **(g)** £207   **(h)** £36

   (i) £65   **(j)** £4.50   **(k)** £85.50   **(l)** £17.50

2. Change each of the following amounts into   **(i)** Euros

                                                          (ii) Yen :

   (a) £4   **(b)** £49   **(c)** £185   **(d)** £30

   (e) £27   **(f)** £7   **(g)** £304   **(h)** £52

   (i) £83   **(j)** £10   **(k)** £0.50   **(l)** £18.50

3. Change each of the following amounts into Australian dollars:

   (a) £6   **(b)** £57   **(c)** £19   **(d)** £206

   (e) £135   **(f)** £23   **(g)** £2   **(h)** £77

   (i) £34   **(j)** £480   **(k)** £0.50   **(l)** £29.50

4. Maria and Vicki are going on a school trip to Europe. Maria has saved £110 spending money and Vicki has saved £94. How much will they each get when they change their money into Euros?

5. Martin is travelling to America on a business trip. He changes £550 into dollars before he goes.

    (a) How many dollars does he receive?

    (b) If he spends $800 how any dollars will he have left?

6. Carol is going on holiday to Japan with her parents. She takes £75 of her savings to the bank to change into yen.

    (a) How many yen does she receive?

    (b) At the end of her holiday she has 1420 yen left. How many yen did she spend?

Holiday Money (2)

The following questions use this table of exchange rates which gives the amount of each currency you will receive in exchange for £1.

Country	Currency	Rate per £
ICELAND	Kroner (k)	120 k
SWITZERLAND	Francs (f)	1.43 f
INDIA	Rupees (r)	94.55 r
CANADA	Dollars ($)	$1·60
SOUTH AFRICA	Rand (R)	15·2 R

1. Change the following amounts into pounds:

    (a) 600 k   **(b)** 1920 k   **(c)** 4440 k   **(d)** 5640 k

    (e) 7680 k   **(f)** 123600 k   **(g)** 25680 k   **(h)** 160800 k

    (i) 5424 k   **(j)** 7572 k   **(k)** 131316 k   **(l)** 870 k

2. Change the following into pounds:

    (a) $ 48   **(b)** $84   **(c)** $432   **(d)** $156

    (e) $ 1200   **(f)** $2040   **(g)** $4200   **(h)** $22800

    (i) $ 3936   **(j)** $1800   **(k)** $12   **(l)** $237.6

3.   Change the following sums of money into pounds [Answer to nearest penny]:

(a)   490 r   (b)   245 r   (c)   58800 r   (d)   36750 r

(e)   25480 r   (f)   8820 r   (g)   3430 r   (h)   98000 r

(i)   2352 r   (j)   933 r   (k)   6076 r   (l)   441 r

4.   Jean-Pierre is visiting some friends in England. He bought some presents in Geneva before he left home. The presents are shown below. How much did each item cost in pounds?
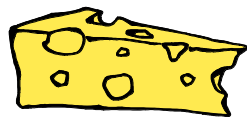
Swiss cheese

13·57 f

French wine

20.93 f
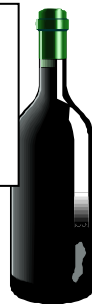
Chocolate

55·66 f

5.   Riz has been on holiday in India. He comes home with 945 rupees. How much is this in pounds ?

6.   Soraya changes £245 into Rand for a visit to South Africa.

(a)   How many Rand does she receive?

(b)   She spends 3344 Rand. How much does she have left?

(c)   When she returns she exchanges her Rand. How many pounds will she get?

Measurements(length)

1. Write down 2 things that would be measured using:

    (a)   centimetres

    (b)   kilometres

    (c)   metres

    (d)   millimetres

2. What unit would you use to measure:

    (a)   the height of the classroom:

    (b)   the width of a 5p coin:

    (c)   the distance from the Earth to the Moon:

    (d)   the length of you arm:
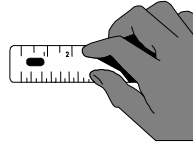
3. The main instruments we use to measure length are:

    ruler   tape measure   metre stick   trundle wheel

    Write down which one you would use to measure each of the following:

    (a)   the distance round a football pitch

    (b)   the length of a pair of trousers

    (c)   the width of your hand

    (d)   the length of your bedroom

4. Write down one more object that you would measure using:

    (a)   a trundle wheel:

    (b)   a ruler:

5. Measure the length of these lines writing your answers in centimetres **and** in millimetres:

(a) ———————————— **(b)**

(c) **(d)**
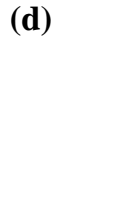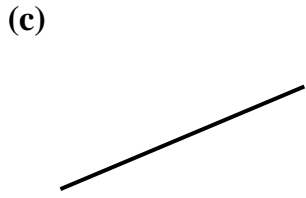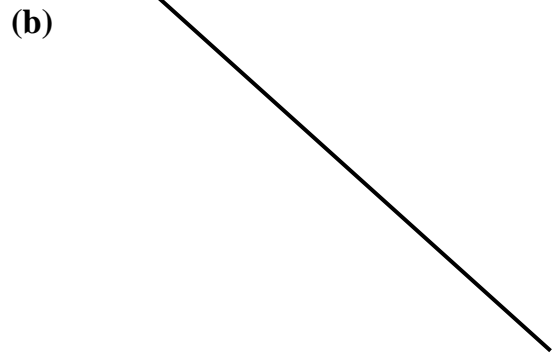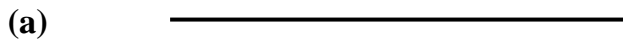
6. Measure these objects and write your answer in centimetres:

(a)

(b)

(c)

(d)
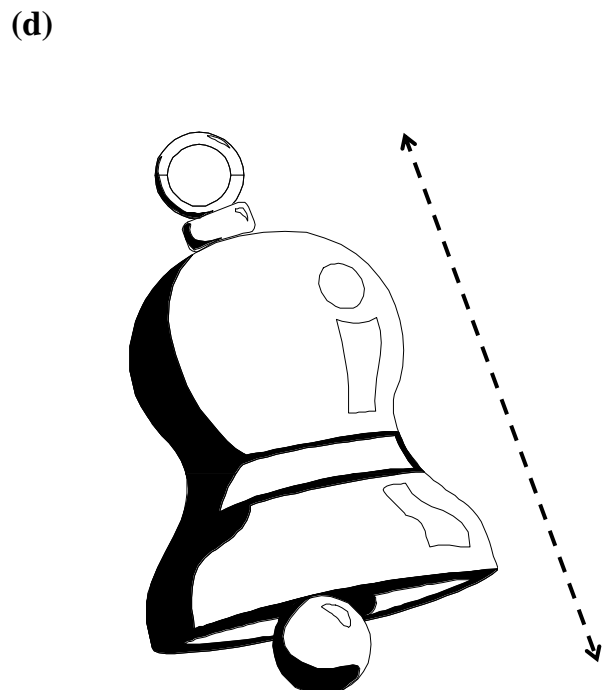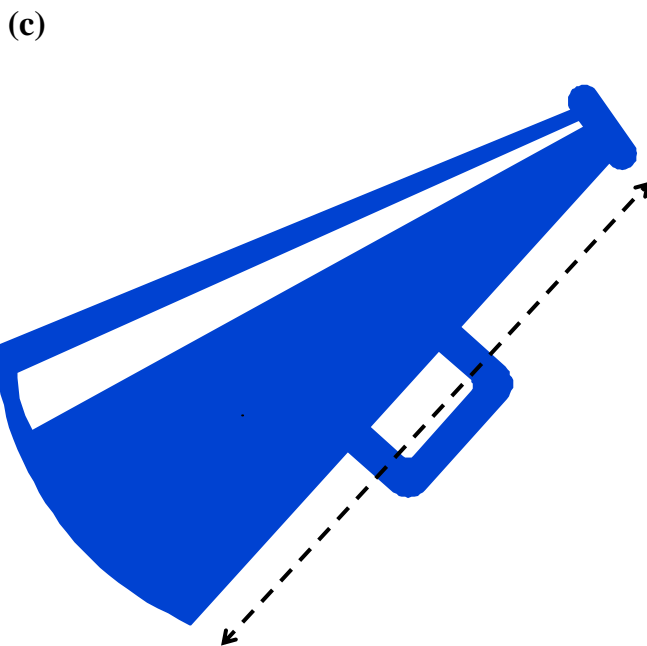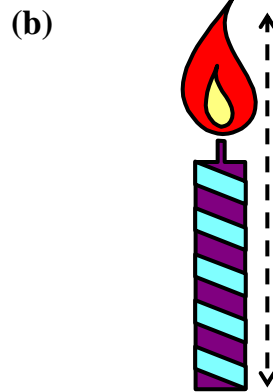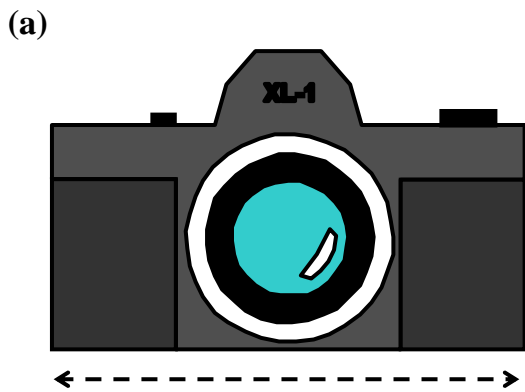
Measurements (volume and capacity)

1. Which unit would you use to measure the following:

Choose from:
Grams
Kilograms
Millilitres
Litres

(a) The weight of a bag of crisps.

(b) The volume of a car's petrol tank.

(c) The weight of a car.

(d) The volume of a medicine spoon.

2. Here are 5 items which all have different weights. Put them into order of weight starting with the one you think is the lightest:

(a) a football

(b) a golf ball

(c) a cricket ball

(d) a tennis ball

(e) a ten-pin bowling ball

3. Here are 5 containers. Put them in order of the amount of liquid they can hold starting with the one which you think holds the most:

(a) a baby bath

(b) a cup of coffee

(c) a small bottle of perfume

(d) a kettle

(e) a car's petrol tank

Measurements again (you may write on parts of this sheet)

1. A bag of apples weighs 1·75kg.(A)

A tin of beans weighs 500g. (B)

Mark these weights on the scales
shown using the letters A and B.
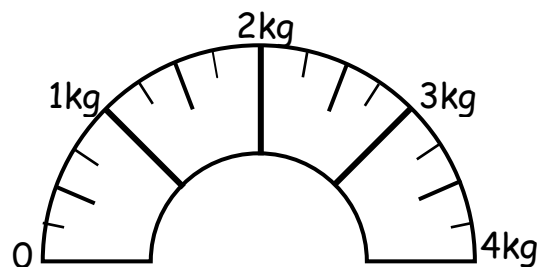
2. A bag of sugar weighs 1kg. (C)

A pack of flour weighs 2500g. (D)

Mark these weights on the scales
shown using the letters Cand D
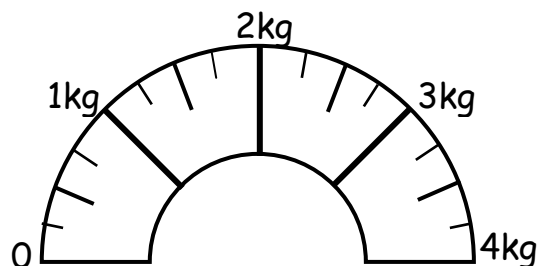
3. The width of my calculator is 6·7cm. (E)   The length of my middle finger is 75mm. (F)

Mark these measurements on this ruler using the letters E and F.
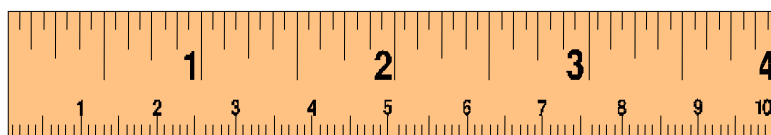
4. The width of a postcard is 9·5cm. (G)   The length of a baby's foot is 77mm. (H)

Mark these measurements on this ruler using the letters G and H.
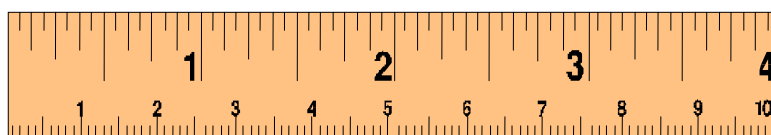
5. **(a)** Mr Jones told his
Science class to
measure 225ml
of water.

Shade this measure
to show 225ml.
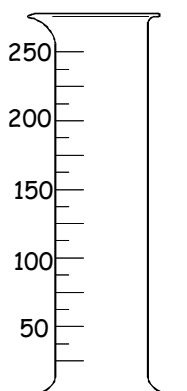
(b) A small can of
juice holds 150ml.

Shade this measure
to show 150ml.
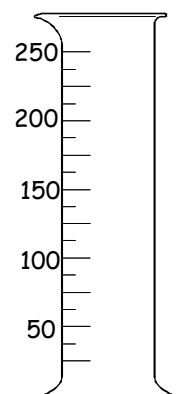
(c) Mr Kemp told his Science class to measure 25ml of water.

Shade this measure to show 25ml.
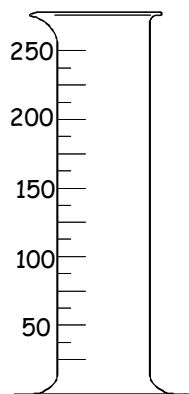
(d) A small up holds 175ml.

Shade this measure to show 175ml.
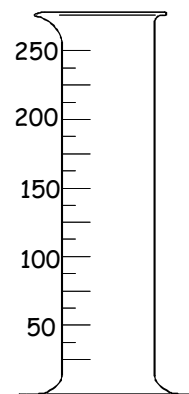
6. **(a)** Write down the length of this line:
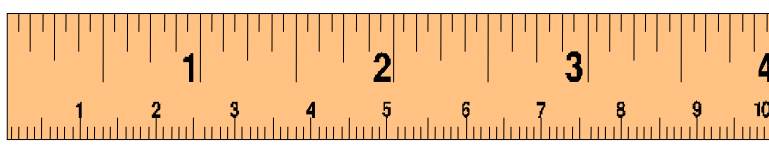
(b) Extend the line so that is measures 9·2cm.

(c) What length of line have you added?

7. **(a)** Write down the length of this line:
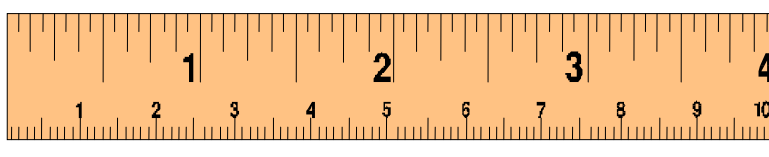
(b) Extend the line so that is measures 7·3cm.

(c) What length of line have you added?

8. **(a)** Write down the length of this line:
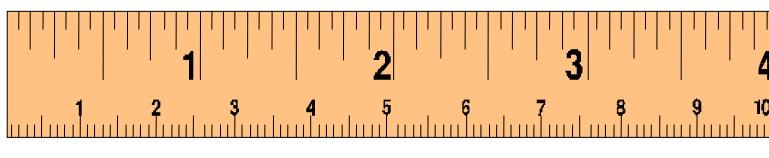
(b) Reduce the line so that is measures 2·6cm.

(c) What length of line have you taken away?

9. Write down the weight indicated on each of these scales?
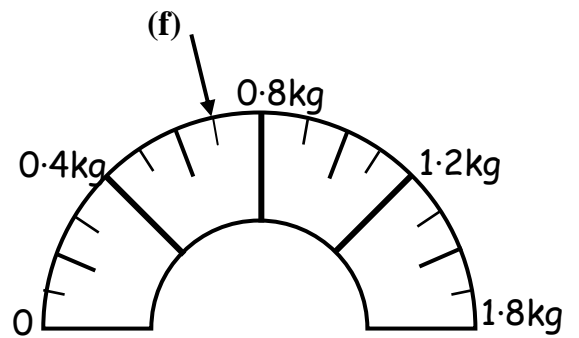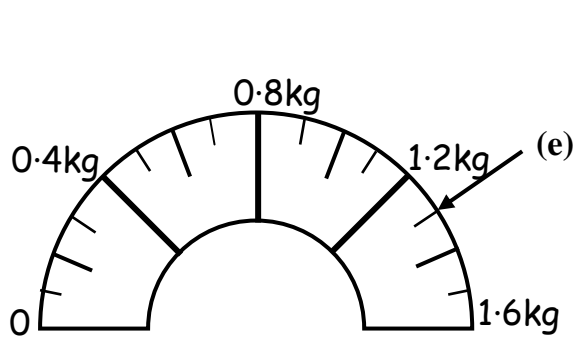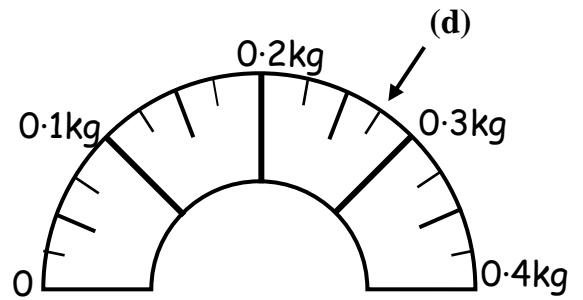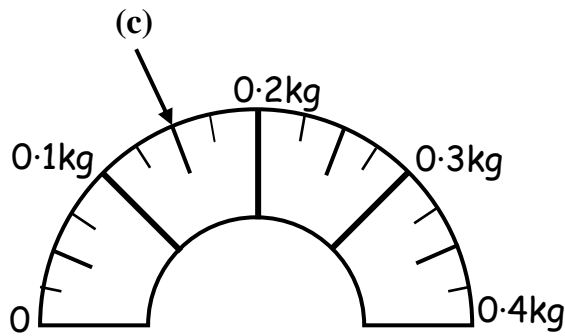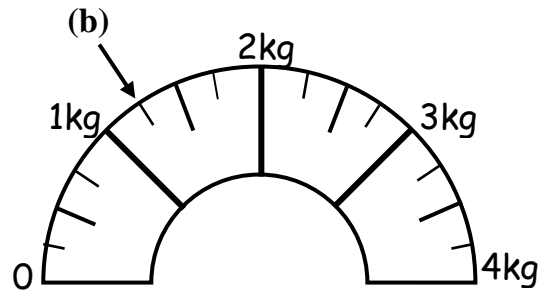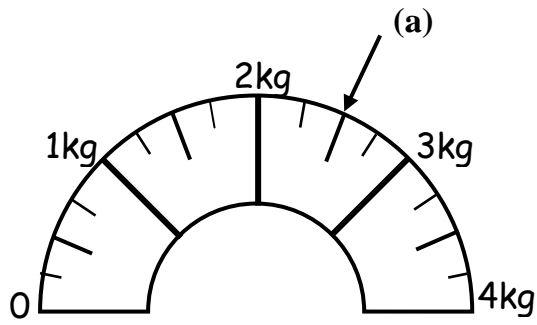
10. Write down the volumes indicated on these measuring jugs:
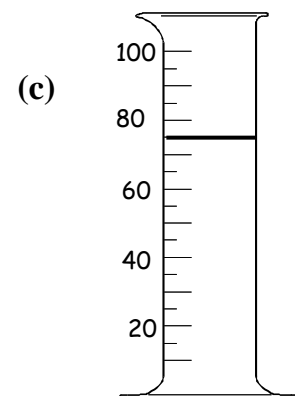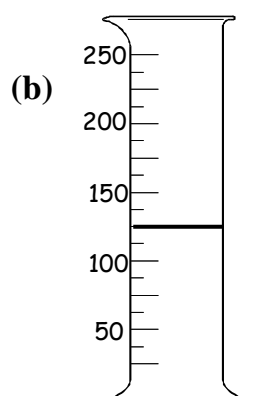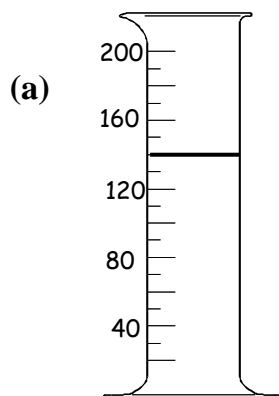
11.   Estimate the size of these angles and then use a protractor to check:

(a)
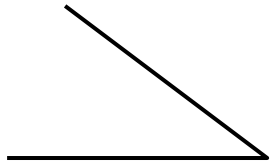
(b)
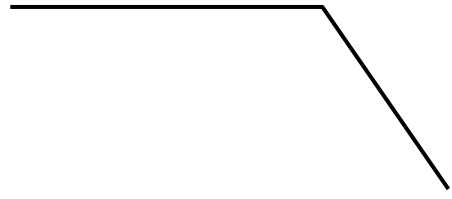
(c)
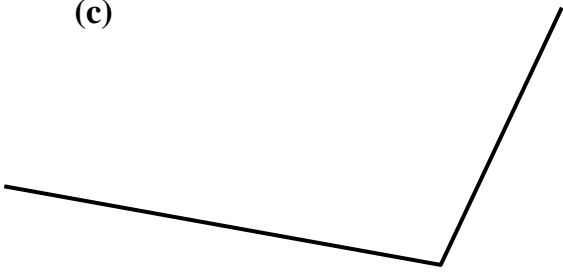
(d)
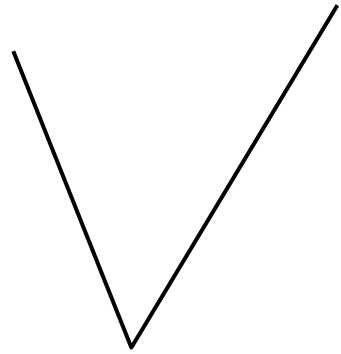
(e)
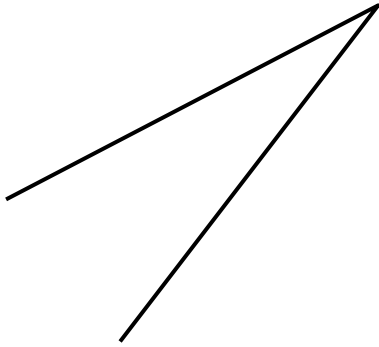
(f)

(g)
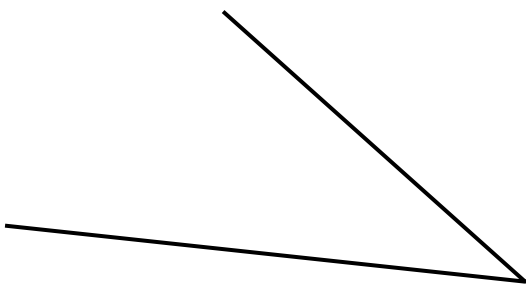
(h)
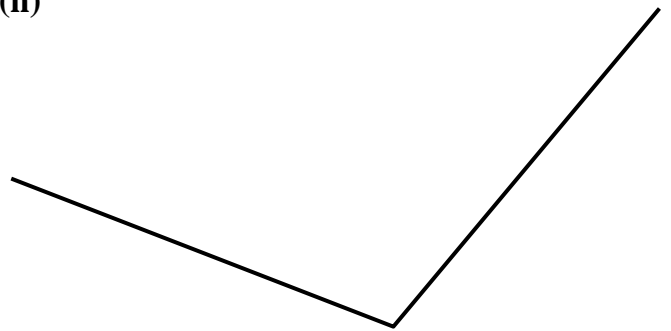
(i)

(j)
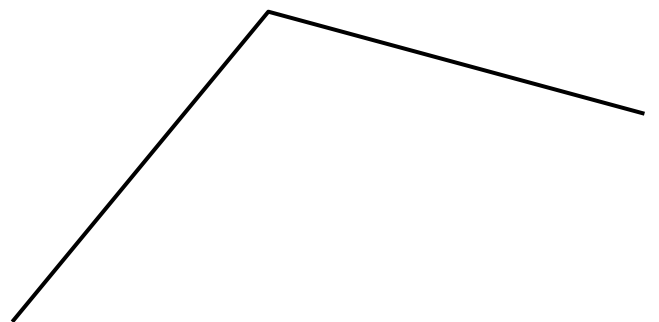
Conversions

1.   Change to kilograms:

(a)	4000g	**(b)**	34000g	**(c)**	90000g	**(d)**	36000g
(e)	3500g	**(f)**	4800g	**(g)**	3700g	**(h)**	2600g
(i)	3670g	**(j)**	8635g	**(k)**	2082g	**(l)**	1070g
(m)	340g	**(n)**	780g	**(o)**	375g	**(p)**	863g
(q)	65g	**(r)**	23g	**(s)**	99g	**(t)**	21g
(u)	3g	**(v)**	7g	**(w)**	9g	**(x)**	1g

2.   Change to grams:

(a)	8kg	**(b)**	19kg	**(c)**	50kg	**(d)**	75kg
(e)	4·642kg	**(f)**	1·635kg	**(g)**	7·482kg	**(h)**	1·077kg
(i)	0·349kg	**(j)**	0·653kg	**(k)**	0·42kg	**(l)**	0·68kg
(m)	3·54kg	**(n)**	5·65kg	**(o)**	10·02kg	**(p)**	16·67kg
(q)	4·8kg	**(r)**	7·2kg	**(s)**	45·4kg	**(t)**	21·6kg
(u)	0·53kg	**(v)**	0·087kg	**(w)**	0·09kg	**(x)**	0·001g

3.   Change these to litres:

(a)	3000ml	**(b)**	3800ml	**(c)**	60000ml	**(d)**	83000ml
(e)	6700ml	**(f)**	2700ml	**(g)**	1700ml	**(h)**	9200ml
(i)	3890ml	**(j)**	3728ml	**(k)**	5087ml	**(l)**	2085ml
(m)	810ml	**(n)**	270ml	**(o)**	281ml	**(p)**	928ml
(q)	29ml	**(r)**	10ml	**(s)**	82ml	**(t)**	94ml
(u)	6ml	**(v)**	1ml	**(w)**	7ml	**(x)**	4ml

4. Change these to millilitres:

(a) 4*l* (b) 22*l* (c) 80*l* (d) 65*l*

(e) 4·642*l* (f) 1·635*l* (g) 7·482*l* (h) 1·077*l*

(i) 0·756*l* (j) 0·831*l* (k) 0·81*l* (l) 0·62*l*

(m) 1·57*l* (n) 2·91*l* (o) 12·09*l* (p) 24·27*l*

(q) 1·3*l* (r) 6·9*l* (s) 21·1*l* (t) 98·1*l*

(u) 0·076*l* (v) 0·722*l* (w) 0·06*l* (x) 0·005*l*

5. Change these to metres:

(a) 400cm (b) 300cm (c) 1200cm (d) 11400cm

(e) 60cm (f) 70cm (g) 91cm (h) 28cm

(i) 5230cm (j) 2871cm (k) 1009cm (l) 3322cm

(m) 8cm (n) 7cm (o) 1cm (p) 5cm

6. Change these to centimetres:

(a) 7m (b) 36m (c) 120m (d) 134m

(e) 570m (f) 23m (g) 12·3m (h) 9·06m

(i) 6·4m (j) 0·6m (k) 2·05m (l) 7·8m

(m) 7·98m (n) 4·007m (o) 0·09m (p) 0·7m

7. Change these to centimetres:

(a) 7000mm (b) 3600mm (c) 10200mm (d) 11400mm

(e) 570mm (f) 230mm (g) 123mm (h) 906mm

(i) 60mm (j) 20mm (k) 25mm (l) 78mm

(m) 7mm (n) 4mm (o) 2mm (p) 1mm

8. Change to millimetres:

(a) 8cm (b) 3cm (c) 6·7cm (d) 6·98cm

(e) 0·34cm (f) 1·78cm (g) 2·59cm (h) 3·09cm

9.   Change to kilometres:

   (a)   6000m   **(b)**   1500m   **(c)**   29000m   **(d)**   4870m

   (e)   536m   **(f)**   650m   **(g)**   21m   **(h)**   7m

10.   Change to metres:

   (a)   3km   **(b)**   12km   **(c)**   3·8km   **(d)**   4·67km

   (e)   0·216km   **(f)**   0·64km   **(g)**   0·37km   **(h)**   0·017km

11.   Change these to metres:

   (a)   7000mm   **(b)**   3600mm   **(c)**   10200mm   **(d)**   11400mm

   (e)   570mm   **(f)**   230mm   **(g)**   123mm   **(h)**   906mm

   (i)   60mm   **(j)**   20mm   **(k)**   25mm   **(l)**   78mm

   (m)   7mm   **(n)**   4mm   **(o)**   2mm   **(p)**   1mm

12.   Change to millimetres:

   (a)   9m   **(b)**   2m   **(c)**   3·3m   **(d)**   5·34m

   (e)   0·234m   **(f)**   0·78m   **(g)**   0·99m   **(h)**   0·009m

13.   Change to kilometres:

   (a)   700000cm   **(b)**   150000cm   **(c)**   230000cm   **(d)**   56700cm

   (e)   53610cm   **(f)**   4700cm   **(g)**   660cm   **(h)**   90cm

14.   Change to centimetres:

   (a)   2km   **(b)**   23km   **(c)**   3·5km   **(d)**   1·53km

   (e)   0·333km   **(f)**   0·674km   **(g)**   0·557km   **(h)**   0·046km

Interpret graphical data and situations involving probability to solve, straightforward real-life problems involving money/time/measurement

Reading Tables

1. This table shows the cost of hiring a bike in Millport:

	2 hours	4 hours	6 hours
Adult	£3	£5.50	£6.75
Child	£2	£3.50	£4.75

Answer the following questions from the table:

(a) How much does it cost for an adult to hire a bike for 4 hours?

(b) How much would it cost for 1 adult and 1 child to hire a bike for 2 hours?

(c) Mr and Mrs Cameron and their 2 young children want to hire bikes for 6 hours

How much would it cost altogether?

2. Here is a table showing the cost of a holiday in Spain. Prices are for 14 nights for an adult. Children (5 – 15) pay half price.

June	July	August	September	October
£549	£589	£628	£607	£555

Answer these questions from the table:

(a) How much would it cost one adult to go to Spain in August?

(b) David is 21 and decides to take his little sister (15) to Spain in October.

How much would it cost altogether?

(c) Mr and Mrs Davis take Peter (10) and Pat (17) to Spain in July.

How much would this holiday cost in total?

3.

	M	T	W	T	F	S	S
			1	2	3	4	5
OCTOBER	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

Answer these questions about this calendar:

(a) What date was the third Sunday of October?

(b) The school had a Disco on October 23rd. On which day of the week was it?

(c) The Douglas family went away on a skiing holiday on the 12th and came home on the 23rd. How many nights were they away for?

(d) What date was it 1 week before the 14th?
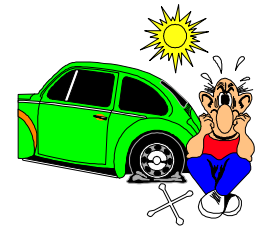
4.

34	21	24	9	13	BEETON
41	25	3	22		CEETON
7	27	33			DEETON
17	32				GEETON
30					LEETON

FEETON

ALL DISTANCES ARE IN **KILOMETRES**.

Answer these questions from the distance table:

(a) How far is from Beeton to Ceeton?

(b) Katie travelled from Leeton to Deeton.

How far did she travel?

(c) John drove from Beeton to Feeton and then on to Geeton?

How far did he drive altogether?

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5. The local stationers make photocopies. The table shows the charges they make for doing this:

NO OF COPIES	BLACK & WHITE	COLOUR
UP TO 10	10p each	20p each
11-50	9p each	18p each
51-100	8p each	16p each
101-150	7p each	14p each
151-200	6p each	12p each
201-250	5p each	10p each

(a) How much would it cost for:

(i) 5 copies   **(ii)** 60 copies   **(iii)** 200 copies   **(iv)** 105 copies

  (black and white)   (colour)   (colour)   (black and white)

(b) Janine wanted 50 copies of a worksheet in black and white but thought it might be cheaper to get 55 copies.

By calculating the cost of 50 and 55 decide whether Janine was correct or not.

(c) Holly went to get 20 coloured copies of a photograph. How much would she have saved if she had got black and white copies instead of coloured ones?

6. Mandy works in a shoe shop and is often asked about continental shoe sizes. She has this table to help her:

Continental	35·5	36	37	37·5	38	38·5	39	40	41	42	43
U.K.	3	3·5	4	4·5	5	4·5	6	6·5	7	8	9

Write out what continental sizes these U.K. sizes are the same as:

(a) 5   **(b)** 7   **(c)** 3·5

7. This table shows the number of rolls of wallpaper required for different sizes of rooms:

Height from ceiling to floor	Width round room							
	9m	10m	12m	13m	14m	15m	17m	18m
0·75 – 1·00m	2	3	3	3	3	4	4	4
1·00 – 1·25m	3	3	4	4	4	5	5	5
1·25 – 1·50m	3	4	4	5	5	5	6	6
1·50 – 1·75m	4	4	5	5	6	6	6	7
1·75 – 2·00m	4	5	5	6	6	7	7	8
2·00 – 2·15m	4	5	5	6	6	7	7	8
2·15 – 2·38m	4	5	5	6	6	7	7	8

(a) Use the table to decide how many rolls of wallpaper would be needed for these rooms:

      (i)   Height: 1·7m   Width: 13m

      (ii)   Height: 2·1m   Width: 18m

      (iii)   Height: 1·9m   Width: 9m

(b) Mr and Mrs Baillie were going to wallpaper their lounge and their bedroom.

Their lounge was 2·2 metres high and had a width of 18m. Their bedroom was the same height but was only 14 metres wide.

Work out how many rolls of paper they would need altogether.

(c) The wallpaper they chose for the lounge cost £12.50 a roll and for the bedroom £7.75 a roll.

Calculate how much it would cost them to buy the wallpaper for both rooms.

8. A survey was carried out amongst 500 adults who booked a holiday on-line to find out what type of holiday they had chosen.

The results of the survey are shown in the table below.

Age	Package	Activity	Fly drive	Cruise
50 and under	112	96	38	24
Over 50	55	48	31	96

Answer these questions from the table:

(a) How many of the adults surveyed were over 50 years old?

(b) How many adults under 50 booked to go on a cruise?

(c) How many in total booked to go on a package holiday?

(d) What does this information tell you about their holiday choices as people get older?

9. The loan table below shows the monthly repayments for borrowing different amounts from a finance company with and without loan protection.

Answer the questions below from the information in the table.

Sink Before You Can Swim Loans						
	48 months		**36 months**		**24 months**	
	with	**without**	**with**	**without**	**with**	**without**
£20 000	492.27	476.66	633.62	601.94	889.81	845.32
£15 000	398.70	387.76	485.20	460.21	682.36	648.24
£10 000	279.14	265.18	346.81	329.47	494.91	470.16
£8 000	223.00	212.50	277.50	263.00	405.50	385.50

(a) Ally wants to borrow £15000 and to pay it back over 24 months with loan protection.

How much would he have to pay back each month?

(b) How much would he save per month if he took the loan without loan protection?

(c) Stuart borrowed £10000 and wanted to pay it back over 36 months without loan protection.

What is the amount he would have to pay per month?

(d) Gordon is paying back £263 per month without loan protection.

How much did he borrow, how long will it take him to pay the loan back and did he take it with or without loan protection?

(e) Katie can repay £390 per month and wants to have loan protection.

What is the maximum amount of money she can borrow and for how long?

(f) If Katie decided not to take loan protection, how much could she then borrow and for how long?

10. Maria decides to apply for a credit card and compares some of those available.

Credit Card	Annual Fee	APR	Monthly rate	Minimum Payment
Vista	£12	21·1%	1·61%	£5 or 5%
Silvercarp	none	19·8%	1·52%	£4 or 4%
Canadian Express	£15	28·8%	2·13%	£5 or 5%
National Direct	£10	18·6%	1·43%	£5 or 5%

(which ever is greater)

(a) How much is the annual fee for Canadian Express?

(b) What is the APR for National Direct?

(c) What is the monthly rate of interest for Vista?

(d) What is the minimum payment for Silvercarp?

(e) If Maria spent £150, how much would her minimum payment be with Vista?

(f) How much would it be with Silvercarp?

11. The table below shows the cost of a touring holiday to USA with a stay in either Scottsdale or Las Vegas. Prices are per person.

	Days	Apr 15	Apr 22	May 20 Jun 3	Jun 10	Sep 2, 9, 23	Sep 30	Oct 14
				Dates				
Tour + Scottsdale	16	1965	2035	1999	2059	2069	2115	2039
Tour + Las Vegas	17	2125	2189	2159	2219	2229	2269	2195
There is a supplement for single travellers of £495. Children 5 – 15 get 10% discount.								

(a) How many days does the Tour and Scottsdale holiday last?

(b) How much would it cost for these holidays?

(i) Tour + Las Vegas leaving on June 10th for 2 adults.

(ii) Tour + Scottsdale leaving on April 22nd for 4 adults.

(iii) Tour + Las Vegas for 2 adults and 2 children (5 and 10) leaving on October 14th

(iv) Tour + Scottsdale for 1 adult leaving on June 3rd.

12. This table shows the cost of a holiday to Dubrovnik. Prices are per person.

	Days	Feb 7	Mar 7	Apr 4	May 2	Jun 6	Jul 4	Aug 1
					Dates			
Hotel Imperial	3	386	386	618	699	843	743	775
	7	574	574	062	1123	1327	1279	1311
	10	715	715	1220	1441	1690	1681	1713
	14	903	903	1564	1865	2174	2217	2249
Hotel Excelsior	3	392	392	603	621	765	632	703
	7	588	588	927	941	1145	1059	1143
	10	735	735	1170	1181	1430	1389	1473
	14	931	931	1494	1546	1810	1829	1913
There is a supplement for single travellers of £75 per night. Children 5 – 15 get 20% discount.								

Calculate the cost of these holidays

(a) 14 nights in the Hotel Imperial for 2 adults leaving on June 6th.

(b) 10 nights in Hotel Excelsior for 2 adults leaving on August 1st.

(c) 3 nights for 2 adults and 1 child in the Hotel Imperial leaving on April 4th.

(d) 7 nights in the Hotel Excelsior for 1 adult leaving on March 7th.

Interpreting statistical diagrams

1. A school tuck shop records how many packets of each flavour of crisps it sells each day. The results for Monday are shown in the bar graph below.
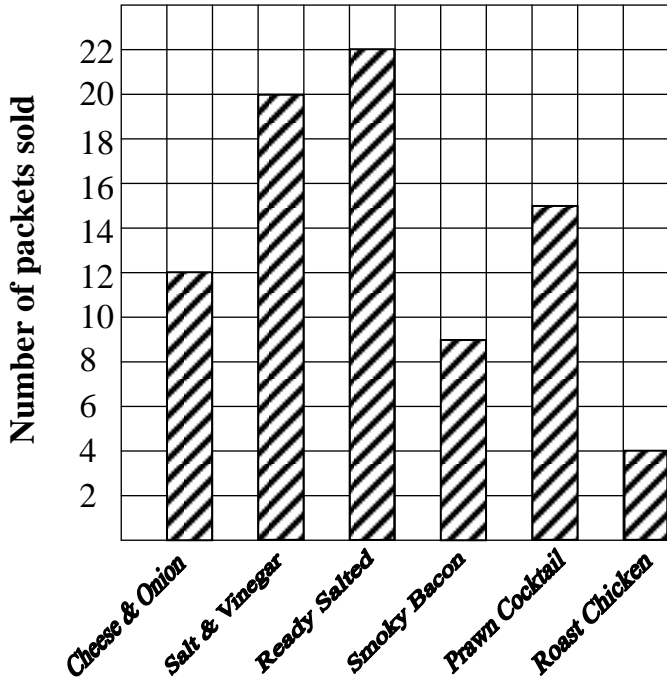
(a) How many flavours of crisps does the tuck shop sell?

(b) What is the most popular flavour?

(c) What was the total number of packets sold?

(d) What is the least popular flavour?

(e) List the flavours in order from the most popular to the least popular.

2. The bar chart shows the number of hours of sunshine for a week in April.

(a) Which day was the sunniest?

(b) Which day had 8 hours of sunshine?

(c) What was the total number of hours of sunshine over the weekend (Saturday & Sunday)?
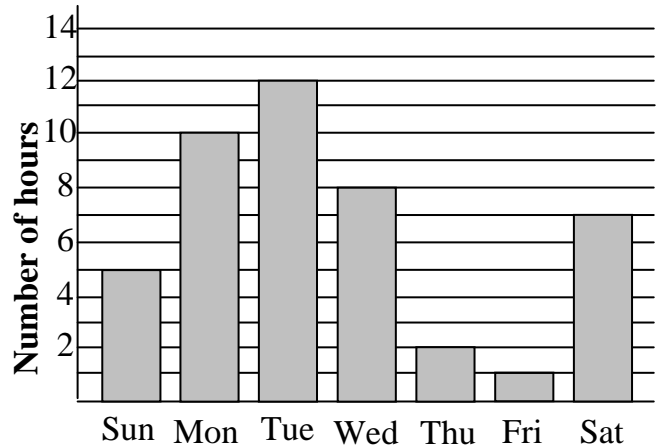
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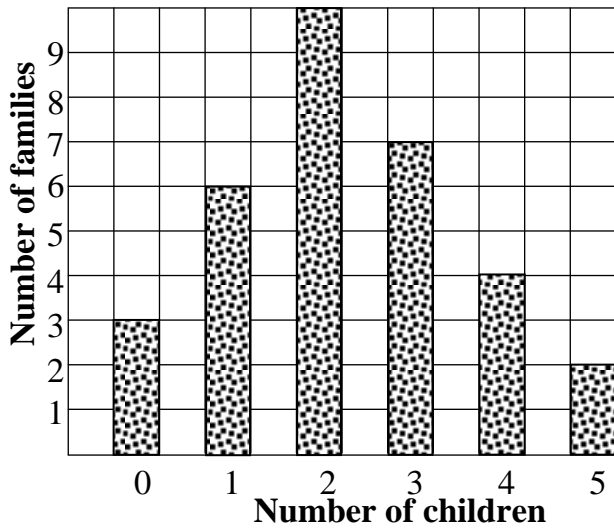
A number of families in an estate were asked about the number of children in the family.

The results are shown in the bar chart.

(a) How many families had 3 children?

(b) How many had no children?

(c) How many had more than 3 children?

(d) How many families were asked?

4. 1200 books in the school library are classified in four categories.

(a) What fraction of the books are
(i) fiction

(ii) non-fiction

(iii) reference

(iv) careers?

(b) How may non-fiction books are there ?

(c) How many careers books are there?
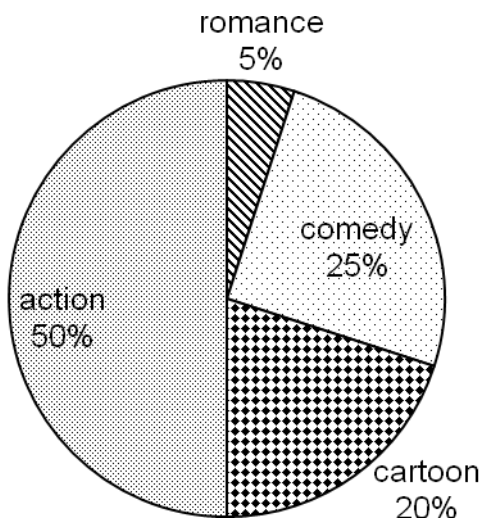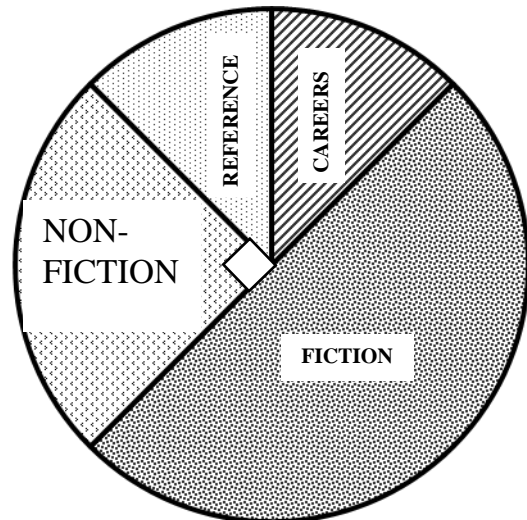
5. The 40 films on TV over a holiday weekend can be put into 4 categories.

(a) What fraction of the films were

(i) comedy

(ii) action

(iii) romance

(iv) cartoon ?

(b) Which category had the most films?

6. A class of 30 pupils was asked about how they travelled to school.

Car 30%

Bus 40%

Walk 10%

Cycle 20%

(a)   What fraction

        (i)   walked

        (ii)   came by bus

        (iii) came by car

        (iv) cycled?

(b)   What was the least popular method of travel?

(c)   How many came by bus?
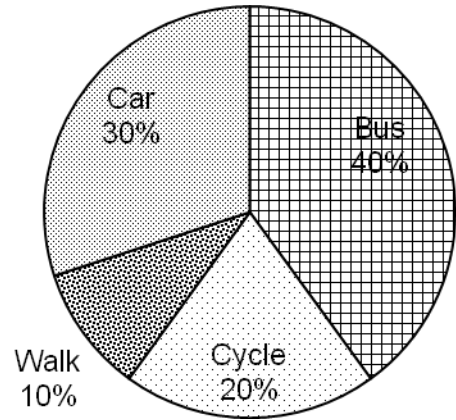
7. The line graph shows the average daily hours of sunshine in a holiday resort in the low season.

(a)   Which month has the fewest hours of sunshine ?

(b)   What is the average daily hours of sunshine in

        (i)   December

        (ii)   April?

(c)   How many more hours of sunshine are there in March than in November?

(d)   Describe the general trend of the graph.
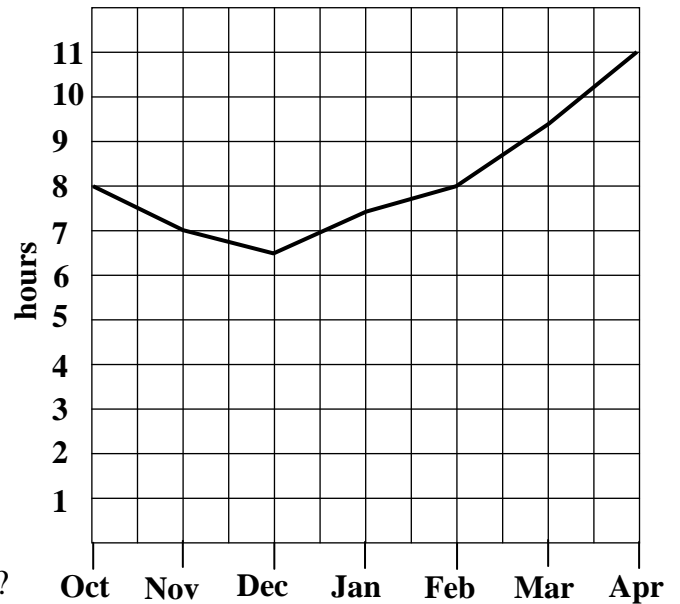
8. The graph shows the time taken for a pupil to successfully walk through a maze in 10 attempts.

(a)   What happens as the number of attempts increases?

(b)   Why do you think that is the case?

9.
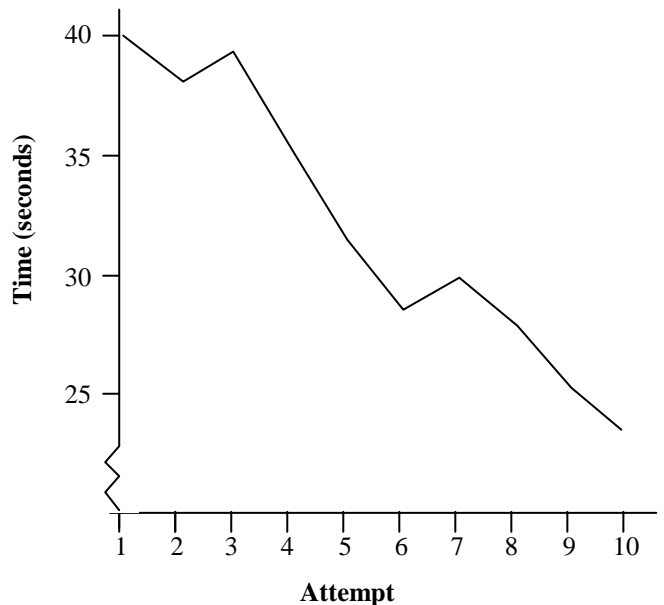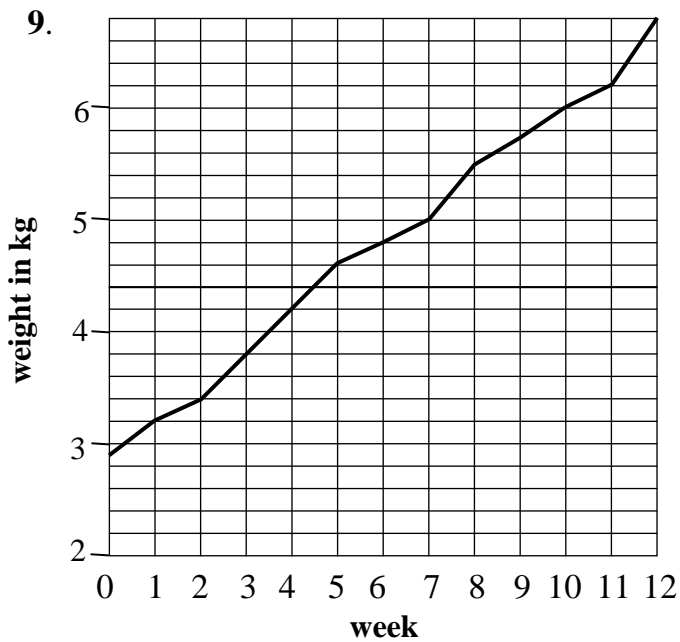
The graph shows the increase in a baby's weight over its first few weeks.

(a) What was the baby's birth weight?

(b) What did it weigh after
  (i) 5 weeks
  (ii) 9 weeks
  (iii) 12 weeks

(c) How much weight did the baby put on between week 3 and week 7?

(d) Between which 2 consecutive weeks was the greatest increase in weight?

10. A sample of tomato plants are measured for height. Their heights are recorded to the nearest centimetre.

The stem-and-leaf diagram shows the results.

(a) How many plants were in the sample?

(b) What height is the tallest plant?

(c) Write out level 5 in full.

(d) What fraction of the plants were more than 50cm tall?

Height of Plant (cm)

```
2 | 1 3
3 | 0 2 2 7
4 | 4 5 6 8 9 9
5 | 6 7 9
6 | 3
```

$n = 16$ 2 | 1 represents 21cm
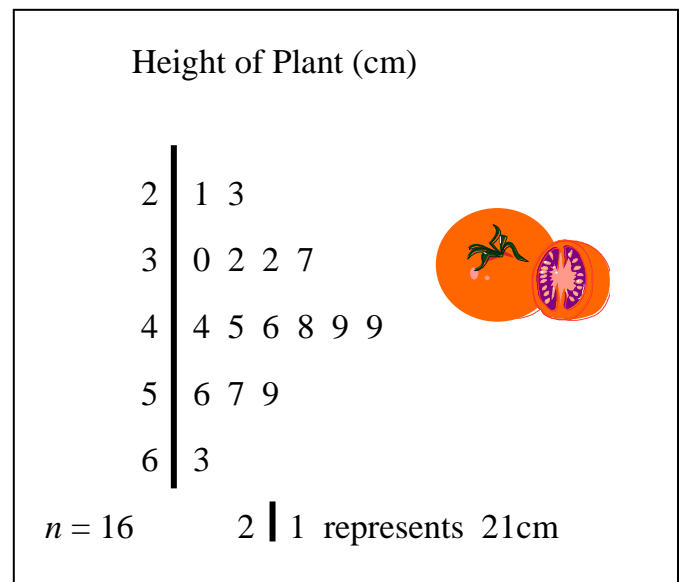
11. Susan decided to visit various shops in her surrounding area in order to compare the price of an identical CD player.

Her results, shown below, are given to the nearest pound.

£68   £75   £73   £80   £75   £79   £81   £66   £71   £92   £83   £75   £78

(a) Construct a stem-and-leaf diagram to represent this data.

(b) What was the median price?

12. A factory has a small workforce of eleven people. The owner decides to compare absence rates (in days) over the last two years.

The results are shown in the back-to-back stem-and-leaf diagram below.

Absences (days)

last year   *this year*

```
      7 6 | 0 | 3 9 9
        5 | 1 | 1 1 7
    8 5 1 | 2 | 4 6
    7 2 0 | 3 | 3
      4 2 | 4 | 1 5
```

n = 11   0 | 3 represents 3 days   n = 11
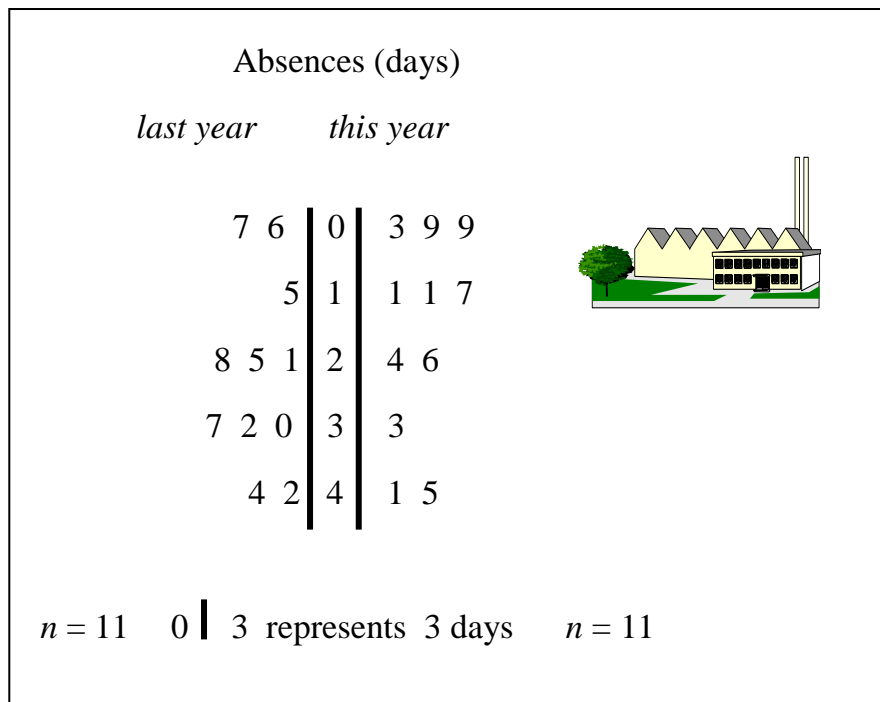
(a) What is the largest number of absences recorded?

(b) State the median of the absences for "*last year*" and "*this year*".

(c) Compare the absences and comment

Interpret Statistics

1. Two makes of matches are being compared, "Brighto" and "Sparky", they both cost the same per box.

14 boxes of each type are sampled to find the number of matches in a box. Here are the results.

Brighto 48 45 47 39 52 36 58   **Sparky** 38 42 49 39 62 56 52
41 38 39 46 50 61 37   40 58 49 29 51 64 57
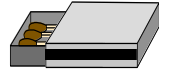
(a) Construct a back-to-back stem-and-leaf diagram to represent this information.

(b) Which make of match, if any, is a better buy? Give a reason for your answer.

2. Paul works in a shoe shop on a Saturday. The manager wants to make a special purchase of "Trainers". He asked Paul to do a tally of sizes of men's shoes sold that day.

Size	6	6½	7	7½	8	9	10
PairsSold	5	17	21	16	15	11	2

(a) Which size of shoe will the manager order most of?

(b) What do we call this measure in statistics?

3. The *Lucky Strike Match Company* advertises the *average* contents of its boxes as 48. Here is a sample of the boxes contents :

45   47   46   50   48   51   46   47   49   51

Is the company correct in their advert? Give a reason for your answer.

4. The ages of the players in a local football team are given below :

19   23   25   24   19   25

31   27   29   30   34

(a) Calculate the mean, median and mode.

(b) Jake is 25 years old. Is he above or below the average age?

(c) The two oldest players leave and are replaced by two players aged 18 and 25.

Calculate the mean median and modal age of the team now.

(d) How would you describe Jake's age now?

5. A small firm employs 10 people. The salaries of the employees are as follows :

£40 000, £18000, £15000, £9000, £15000, £15000, £13000, £15000, £15000, £15000.

(a) Calculate the mean, median and mode.

(b) Which of the three measures best describes the *average* salary in the company?

6. Diane does a lot of travelling in her job. She keeps a note of the miles she drove each week for the first 10 weeks.

785   846   816   704   685   723   960   788   729   814

(a) Calculate the mean weekly mileage.

(b) If Diane's mean weekly mileage stays the same, how many miles would she expect to travel in a year? (She has 6 weeks holiday when she does no driving)

7. In a 5-a-side football competition, the average age of a team must not exceed 16.

Below are the ages of 2 groups of 10 players who want to enter 2 teams each.

A : 14 , 16 , 14 ,17 , 15 , 18 , 16 , 15 , 17 , 18

B : 14 , 15 , 16 , 17 , 15 , 16 , 14 , 16 , 18 , 14

(a) How would you arrange the teams?

(b) Here are the ages of another team: 15, 17, 16, 17, 16

Will they be allowed to take part in the competition?

8. In nine arithmetic tests during the term, Peter's scores were:

20   22   18   21   22   16   14   19   17

Which of the three averages - mean, median or mode - would he prefer to count as his '*mark*' ?

9. The first eight customers at a supermarket one Saturday spent the following amounts:

£25.10, £3.80, £20.50, £15.70,

£38.40, £9.60, £46.20, £10.46.

(a) Find the mean amount spent.

(b) I spend £11.53. Compare this to the average amount spent.
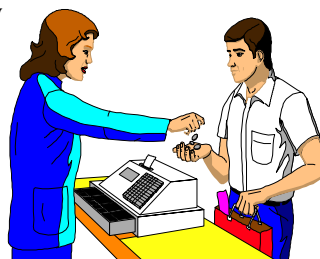
Probability

In each of these situations, decide which is the more likely to happen. Give a reason for you choice each time.

1. **(a)** **A:** choosing a red card from a pack of cards
          B: throwing a multiple of 3 on a die

     (b) **A:** choosing a double from a set of dominoes
          B: choosing a face card from a pack of cards

     (c) **A:** throwing an even number on a die
          B: getting a head when a coin is tossed

     (d) **A:** choosing an ace from a pack of cards
          B: getting a number more than 10 when throwing 2 dice

     (e) **A:** getting a total of more than 7 when two dice are thrown
          B: getting 'tails' when a coin is tossed

     (f) **A:** choosing a face card from a pack of cards
          B: choosing a club from a pack of cards

2. **(a)** A coin is tossed 80 times. How many times would you expect:

        (i) heads   **(ii)** tails?

     (b) A die is thrown 24 times. How many times would you expect:

        (i) an even number   **(ii)** a 3?

     (c) A card is chosen from a pack of playing cards 156 times. The card is replaced each time. How many times would you expect:

        (i) a club   **(ii)** a face card   **(iii)** the ace of clubs?

     (d) A domino is chosen from a pack 112 times and replaced each time. How many times would you expect:

        (i) a double   **(ii)** a domino with 4 spots   **(iii)** a double 4?

3. The probability of a bus arriving on time at a certain bus stop is $\frac{1}{4}$.

     (a) What is the probability of it not arriving on time?

     (b) Out of 64 buses arriving at that bus stop, how many are likely to be on time?

4. The probability of a cat having a litter of more than eight kittens is $0 \cdot 24$.

     (a) What is the probability of a cat having a litter of eight or less kittens?

     (b) Out of 75 female cats, how many would you expect to have a litter of more than eight kittens?

ANSWERS

Four Rules

1.	**(a)** 9862	**(b)** 4785	**(c)** 2056	**(d)** 716 rem 5
2.	**(a)** 8194	**(b)** 842		
3.	1261	**4.** 87		
5.	**(a)** £37.87	**(b)** £12.13		
6.	£258	**7.** £352.75		
8.	£3744	**9.** 26 classes		
10.	64 packs	**11.** **(a)** 4 cans	**(b)** 10p	
12.	**(a)** 8 teams	**(b)** 4 people		
13.	27 rows with 5 plants over			
14.	£4.45	**15.** **(a)** £19.40	**(b)** 34 weeks	
16.	£1.14 short	**17.** £565		
18.	£2.55	**19.** £55		
20.	£131	**21.** £130		
22.	£1090	**23.** World of Computers by £5		
24.	£64	**25.** £56		
26.	£14.28	**27.** £4.35		
28.	£192.50	**29.** £8.95		
30.	**(a)** £49.59	**(b)** no	**(c)** £1.59 short	
31.	£6000	**32.** **(a)** 65p	**(b)** £97.50	
33.	£3.84	**34.** **(a)** £375	**(b)** £62.50	
35.	50p	**36.** £23.10		
37.	£22	**38.** £1372		
39.	**(a)** 18 boxes	**(b)** 15 tiles over		
40.	54·1kg; 52·5kg; 52·9kg; 52kg			
41.	12 weeks	**42.** Wally		
43.	**(a)** £5.19	**(b)** £4.22		
44.	**(a)** 9·78km	**(b)** 7·22km		

Adding and subtracting negative numbers

1.	**(a)** 1	**(b)** −5	**(c)** 3	**(d)** 8	**(e)** 2	**(f)** 7
	(g) 4	**(h)** 10	**(i)** 5	**(j)** −6	**(k)** 5	**(l)** 4
	(m) −1	**(n)** −13	**(o)** 1	**(p)** −1		
2.	**(a)** −10	**(b)** 50	**(c)** −40	**(d)** −70	**(e)** −10	**(f)** −5
	(g) −42	**(h)** −16	**(i)** −23	**(j)** 36	**(k)** 0	**(l)** −70
	(m) −23	**(n)** −27	**(o)** −71	**(p)** −99		

3. $-4^{o}C$ **4.** $-£5$

5. $59\,^{o}C$ **6.** $6\,^{o}C$

7. 79 years   **8.** C A B

Percentages

1.	**(a)** £45	**(b)** £90	**(c)** £22.50	**(d)** £27
	(e) £85.50	**(f)** £9	**(g)** £180	**(h)** £135
	(i) £207	**(j)** £801	**(k)** £247.50	**(l)** £165.60
	(m) £89.10	**(n)** £60.30	**(o)** £20.70	**(p)** £115.20

2. (a) £59.50   (b) £21.25   (c) £83.30   (d) £36.55
      (e) £102   (f) £42.50   (g) £65.45   (h) £96.90
      (i) £65.28   (j) £78.71   (k) £46.92   (l) £115.94
      (m) £18.87   (n) £30.09   (o) £53.38   (p) £85.51

3. (a) £20   (b) £6   (c) £10   (d) £14
      (e) £50   (f) £36   (g) £18   (h) £80
      (i) £16.40   (j) £15.20   (k) £18.80   (l) £27.60
      (m) £20.80   (n) £44.40   (o) £13.60   (p) £7.20

4. (a) £120   (b) £60   (c) £96   (d) £36
      (e) £54   (f) £300   (g) £840   (h) £2400
      (i) £12000   (j) £204   (k) £339.60   (l) £58.80
      (m) £166.80   (n) £26.40   (o) £2394   (p) £9

VAT

1. £288   **2.** £15.12   **3.** £432   **4.** £100.20

5. £89.04   **6.** £394.80

More percentages

1. (a) 10   (b) 78   (c) 11

2. 12; 15; 30

3. 311   **4.** (a) £202.50   (b) £54.28   (c) £694.20

5. 8·25 mins   **6.** 42g

7. £270   **8.** £220.40

9. (a) £24   (b) £40.50   (c) £192

10. 120   **11.** 140g

12. (a) 104   (b) 120   (c) 128

Percentages again

1. (a) 84%; 88%; 80%, 80%; 84%; 75%; 60%; 90%   (b) Art

2. (a) 25%   (b) 90%   (c) 60%   (d) 35%
      (e) 50%   (f) 35%   (g) £70%   (h) 40%
      (i) 20%   (j) 45%   (k) 15%   (l) 72%
      (m) 55%   (n) 10%   (o) 80%   (p) 25%

3. (a) 20%   (b) 25%   (c) 10%

      (d) 40%   (e) 20%   (f) 4%

4. 25%   **5.** 90%   **6.** 65%

7. 48%   **8.** 45%

Fractions, Decimals and Percentages (1)

1. (a) £32   (b) 13kg   (c) £5.20   (d) 36cm
   (e) £85   (f) 45·5g   (g) £10.64   (h) 40·5kg
   (i) £4.68   (j) £4.25   (k) 369mm   (l) £0.81
   (m) £1397   (n) 270 tonnes   (o) 7·5kg

2. (a) £23.40   (b) 162g   (c) £5.85   (d) 252kg
   (e) £1.70   (f) 17·85cm   (g) £12.16   (h) £17
   (i) £572   (j) 360g   (k) £200   (l) £338.40
   (m) £1170   (n) £0.48   (o) 84 tonnes

3. (a) £4.75   (b) £3.05   (c) £1.14   (d) 42p
   (e) £5.95   (f) 21p   (g) £2.20   (h) £13.65
   (i) £41.73   (j) £2.79   (k) £0.23   (l) 30p
   (m) £1.09   (n) £0.36   (o) 55p

4. (a) 80%   (b) 75%   (c) 28%   (d) 70%
   (e) 17%   (f) 95%   (g) 56%   (h) 27%
   (i) 72%   (j) 42%   (k) 13%   (l) 62%
   (m) 7%   (n) 43%   (o) 19%   (p) 10%
   (q) 51%   (r) 21%

5. (a)

Maths	English	Tech	Science	Art	History	French
75%	89%	62%	69%	83%	68%	66%

   (b) English   (c) Tech

Fractions, Decimals and Percentages (2)

1. (a) £287.50   (b) 184kg   (c) 28·75cm   (d) £41.40
   (e) 2415g   (f) 241·5°C   (g) £9.20   (h) £4025

2. (a) £200   (b) 128kg   (c) 20cm   (d) £28.80
   (e) 1680g   (f) 168°C   (g) £6.40   (h) £2800

3.

Name	Increase	New Wage
John Hughes	£9.20	£239.20
Steven Higgins	£10.08	£178.08
Susan Marshal	£8.40	£218.40
Stewart Aitken	£2.90	£147.90
Pamela Grant	£12.60	£372.60
Neil McShane	£13.50	£238.50
James Mackie	£18.80	£253.80
Lorna Graham	£9.45	£219.45
Pat Lavery	£23.40	£491.40

4.   **(a)** $\dfrac{3}{5} = 60\%$ **(b)** $\dfrac{4}{7} = 57\%$ **(c)** $\dfrac{1}{2} = 50\%$ **(d)** $\dfrac{1}{4} = 25\%$

      (e) $\dfrac{11}{16} = 69\%$ **(f)** $\dfrac{2}{5} = 40\%$ **(g)** $\dfrac{2}{7} = 29\%$

5.   **(a)**   36%   **(b)**   56%   **(c)**   43%

6.   **(a)**   20%   **(b)**   2%   **(c)**   5%

Fractions, Decimals and Percentages (3)

1.   **(a)**   £46   **(b)**   £29.60   **(c)**   £91.20   **(d)**   £13.60

      (e)   £130   **(f)**   £26.80

2.   **(a)**   £276   **(b)**   £177.60   **(c)**   £547.20   **(d)**   £81.60

      (e)   £780   **(f)**   £160.80

3.   **(a)**   £92   **(b)**   £2392   **(c)**   £95.68

4.   **(a)**   £1105   **(b)**   £23205   **(c)**   £1160.25

5.   £848.72   **6.**   £898.88

Fractions

1. (a) £15   (b) £32   (c) £5
    (d) £46   (e) £32.40   (f) £6
2. (a) 210cm   (b) 830ml   (c) £94
3. 2·8m   4.   6 hours
5. 207 adults   6.   6 boys
7. 10 white chocolate   8.   6 white candles
9. (a) 36   (b) 216
10. 30 mins   11. 25 days   12. 16 hours

More fractions

1. (a) 192m   (b) £160   (c) £192.50
2. 36 sweets   3.   (a) 21   (b) 3
4. (a) 1160   (b) 290
5. (a) 16   (b) 12   (c) 8
6. (a) 60   (b) 15   (c) 25
7. 400 cars   8.   350 pieces   9.   28

Rounding – revision and 2 decimal places

1. (a) 3   (b) 6   (c) 1   (d) 8
    (e) 8   (f) 3   (g) 5   (h) 9
    (i) 2   (j) 8   (k) 6   (l) 1
    (m) 5   (n) 8   (o) 4   (p) 6
2. (a) 12   (b) 35   (c) 28   (d) 83
    (e) 18   (f) 38   (g) 36   (h) 90
    (i) 123   (j) 364   (k) 19   (l) 343
    (m) 45   (n) 218   (o) 74   (p) 119
3. (a) 20   (b) 70   (c) 70   (d) 90
    (e) 60   (f) 30   (g) 20   (h) 90
    (i) 60   (j) 80   (k) 20   (l) 50
    (m) 30   (n) 80   (o) 70   (p) 30
4. (a) 210   (b) 130   (c) 760   (d) 340
    (e) 280   (f) 120   (g) 520   (h) 200
    (i) 110   (j) 560   (k) 140   (l) 500
    (m) 430   (n) 180   (o) 260   (p) 310
5. (a) 300   (b) 200   (c) 300   (d) 800
    (e) 700   (f) 400   (g) 500   (h) 900
    (i) 100   (j) 300   (k) 700   (l) 700
    (m) 500   (n) 200   (o) 200   (p) 800
    (q) 1300   (r) 1400   (s) 2100   (t) 3500
    (u) 1900   (v) 2000   (w) 6500   (x) 8100

6.i.	**(a)**	2910	**(b)**	5670	**(c)**	1460	**(d)**	8320
	(e)	7770	**(f)**	3100	**(g)**	4520	**(h)**	9290
	(i)	2130	**(j)**	7930	**(k)**	6250	**(l)**	1100
	(m)	4770	**(n)**	8450	**(o)**	3940	**(p)**	6000
ii.	**(a)**	2900	**(b)**	5700	**(c)**	1500	**(d)**	8300
	(e)	7800	**(f)**	3100	**(g)**	4500	**(h)**	9300
	(i)	2100	**(j)**	7900	**(k)**	6300	**(l)**	1100
	(m)	4800	**(n)**	8500	**(o)**	3900	**(p)**	6000
iii.	**(a)**	3000	**(b)**	6000	**(c)**	1000	**(d)**	8000
	(e)	8000	**(f)**	3000	**(g)**	5000	**(h)**	9000
	(i)	2000	**(j)**	8000	**(k)**	6000	**(l)**	1000
	(m)	5000	**(n)**	8000	**(o)**	4000	**(p)**	6000
7.	**(a)**	0·3	**(b)**	0·3	**(c)**	0·6	**(d)**	0·6
	(e)	0·2	**(f)**	0·2	**(g)**	0·4	**(h)**	0·3
	(i)	0·9	**(j)**	0·4	**(k)**	0·8	**(l)**	0·7
	(m)	0·9	**(n)**	0·2	**(o)**	0·7	**(p)**	1·0
8.	**(a)**	2·9	**(b)**	5·7	**(c)**	1·5	**(d)**	8·3
	(e)	7·8	**(f)**	3·1	**(g)**	4·5	**(h)**	9·3
	(i)	2·1	**(j)**	7·9	**(k)**	6·3	**(l)**	1·1
	(m)	4·8	**(n)**	8·5	**(o)**	3·9	**(p)**	5·6
9.	**(a)**	62·0	**(b)**	15·6	**(c)**	31·5	**(d)**	18·3
	(e)	47·3	**(f)**	0·1	**(g)**	10·5	**(h)**	39·6
	(i)	20·8	**(j)**	0·3	**(k)**	61·5	**(l)**	1·0
	(m)	49·9	**(n)**	8·4	**(o)**	18·0	**(p)**	1·0
10.	**(a)**	2·92	**(b)**	5·66	**(c)**	1·41	**(d)**	8·32
	(e)	7·76	**(f)**	3·12	**(g)**	4·53	**(h)**	9·21
	(i)	2·13	**(j)**	7·94	**(k)**	6·25	**(l)**	1·09
	(m)	4·76	**(n)**	8·45	**(o)**	3·94	**(p)**	5·50
11.	**(a)**	£6.17	**(b)**	£0.16	**(c)**	1·07 s	**(d)**	57·14 miles
	(e)	6·28 pages	**(f)**	£138.14	**(g)**	£0.17	**(h)**	0·88 mins
	(i)	2·93 cm	**(j)**	0·36 km				

Further rounding

1.	**(a)**	4m	**(b)**	324m	**(c)**	290cm	**(d)**	484cm
2.	**(a)**	4cm	**(b)**	7cm	**(c)**	3cm		
3.	(a)	£2.46	**(b)**	£90.28	**(c)**	£32.41	**(d)**	£86.90
4.	(a)	£4.64	**(b)**	£63.76	**(c)**	£0.93	**(d)**	£36.86
5.	38p		**6.**	£1.83	**7.**	£2.18		

ROUNDING – significant figures

1.	(a) 20	(b) 6	(c) 80	(d) 30
	(e) 100	(f) 300	(g) 300	(h) 800
	(i) 8000	(j) 2000	(k) 8000	(l) 5000
	(m) 10	(n) 600	(o) 4	(p) 10000
	(q) 1	(r) 100	(s) 0·9	(t) 600
2.	(a) 8·7	(b) 93	(c) 0·19	(d) 680
	(e) 2·1	(f) 6·5	(g) 31	(h) 26
	(i) 24	(j) 19	(k) 6400	(l) 5·0
	(m) 0·053	(n) 0·0061	(o) 0·087	(p) 14000
	(q) 2·5	(r) 45000	(s) 29	(t) 0·76
3.	(a) 120	(b) 4·0	(c) 250	(d) 41
	(e) 49	(f) 0·49	(g) 3·8	(h) 0·084
	(i) 250	(j) 17	(k) 500	(l) 65

Calculate distance given speed and time

1.	(a) 150	(b) 160	(c) 120	(d) 90	(e) 240	(f) 374
	(g) 384	(h) 208	(i) 288	(j) 192	(k) 168	(l) 220
2.	(a) 125	(b) 54	(c) 224	(d) 210	(e) 105	(f) 105
	(g) 279	(h) 95	(i) 81	(j) 168	(k) 168	(l) 252
3.	(a) 200km	(b) 390 miles	(c) 217·5km	(d) 12km	(e) 24miles

4. (a) 3220km   (b) Yes (max. distance 5980km)

5. (a) 91km   (b) 28 + 126 + 21 = 175km

EXTENSION – calculating speed and time

1.	(a) 60	(b) 50	(c) 80	(d) 65	(e) 100	(f) 72
	(g) 46	(h) 76	(i) 56	(j) 65	(k) 83	(l) 51
2.	(a) 50	(b) 64	(c) 82	(d) 76	(e) 64	(f) 66
	(g) 68	(h) 54	(i) 38	(j) 60	(k) 48	(l) 42
3.	(a) 6	(b) 12	(c) 10	(d) 9	(e) 3	(f) 5
	(g) 2	(h) 6	(i) 7	(j) 3	(k) 7	(l) 4
4.	(a) 8	(b) 5	(c) 10	(d) 8	(e) 6	(f) 7
	(g) 2 ½	(h) 3 ½	(i) 1 ½	(j) 2·4	(k) 6·4	(l) 5·5

Time Intervals (12 hour time)

1.	(a) 4	(b) 6	(c) 3	(d) 8	(e) 10	(f) 1
	(g) 4	(h) 8	(i) 9	(j) 8	(k) 12	(l) 8
2.	(a) 3 h 30 min	(b) 2 h 15 min	(c) 3 h 30 min	(d) 1 h 30 min
	(e) 2 h 15 min	(f) 2 h 45 min	(g) 1 h 45 min	(h) 6 h 45 min
	(i) 6 h 15 min	(j) 9 h 15 min	(k) 10 h 45 min	(l) 13 h 30 min
3.	(a) 5 hrs	(b) 14 hrs	(c) 15 hrs	(s) 20 hrs
	(e) 9 hrs	(f) 5 hrs	(g) 3 hrs	(h) 7h15m
	(i) 3 hrs	(j) 8h15m	(k) 12h15m	(l) 3h45m

4. 30 min 5. 8 ½ hrs 6. 1 ½ hrs 7. 8h 45m 8. 15h 45m

9.	(a)	1.52 p.m.	(b)	3.09 p.m.	(c)	4.37 a.m.
	(d)	5.50 a.m.	(e)	midnight	(f)	7.23 a.m.
10.	(a)	3.05 p.m.	(b)	7.55 p.m.	(c)	5.25 a.m.
	(d)	3.15 a.m.	(e)	2.16 p.m.	(f)	1.37 a.m.
11.	(a)	3.30 p.m.	(b)	11.15 a.m.	(c)	7.15 p.m.
	(d)	8 a.m.	(e)	9.29 a.m.	(f)	6 a.m.
12.	(a)	9.45 a.m.	(b)	6.35 p.m.	(c)	10.45 p.m.
	(d)	2.40 a.m.	(e)	11.30 p.m.	(f)	10.30 a.m.
13.	(a)	4 p.m.	(b)	6 a.m.	(c)	11.05 p.m.
	(d)	10.06 p.m.	(e)	5.20 p.m.	(f)	2.20 a.m.
14.	(a)	2.15 p.m.	(b)	00.35 a.m.	(c)	11.45 p.m.
	(d)	1.52 p.m.	(e)	6.45 a.m.	(f)	2.18 a.m.
15.	(a)	2.15 p.m.	(b)	12.10 p.m.	(c)	4.05 p.m.

Time Intervals (24 hour time)

1.	(a)	35	(b)	25	(c)	20
	(d)	24	(e)	34	(f)	32
2.	(a)	**12**	(b)	4	(c)	12
	(d)	18	(e)	15	(f)	13
3.	(a)	2 hours 10 mins	(b)	2 hours 20 mins	(c)	1 hour 45 mins
	(d)	15 hours 20 mins	(e)	15 hours 20 mins	(f)	2 hours 45 mins

4.	(a)	0948	(b)	1356	(c)	1710	(d)	1805	(e)	1223	(f)	1901
5.	(a)	1310	(b)	1210	(c)	1515	(d)	2250	(e)	2025	(f)	1145
6.	(a)	2300	(b)	1708	(c)	0615	(d)	0323	(e)	0731	(f)	2235
7.	(a)	2000	(b)	1234	(c)	1009	(d)	2230	(e)	0250	(f)	2206
8.	(a)	0800	(b)	1435	(c)	2305	(d)	1847	(e)	1938	(f)	1722
9.	(a)	1120	(b)	1205	(c)	1140	(d)	0957	(e)	1750	(f)	0139

10.	1120		11.	0710		12.	(a)	2215	(b)	miss start by 5 minutes

Timetables (1)

1.	(a)	4	(b)	depends on school			
2.	Art		3.	Period 4 – P.E.	4.	English	
5.	1·40 p.m.		6.	English	7.	15 mins	
8.	45 mins		9.	(a) 1.10 p.m.	(b)	24 mins	
10.	8.45 a.m.		11.	3.40 p.m.			
12	(a)	10 mins	(b)	50 mins			
13.	(a)	105 mins	(b)	1 hour 45 mins			
14.	(a)	220 mins	(b)	3 hours 40 mins			
15.	55; 50; 55; 55		16.	1 hour 50 mins	17.	210 mins	
18.	6 hours 30 mins		19.	32 hours 30 mins			
20.	(a)	1 hour 15 mins	(b)	3 hours 45 mins	(c)	27 hours 30 mins	
21.	(a)	8 hours 5 mins	(b)	40 hours 25 mins			

Timetables (2)

1.   BBC 1: Eastenders, Politics, Last of the Summer Wine, Songs of Praise, Sportscene

         ITV 1: News, Eye to Eye. Gaelic Programme, Scotsport, Driving Miss Daisy

2.   **(a)**   Sportscene   **(b)**   45 mins

3.   **(a)**   5·50 p.m.   **(b)**   Scotsport

4.   **(a)**   News   **(b)**   Eastenders

5.   **(a)**   Eastenders   **(b)**   Driving Miss Daisy

6.   **(a)**   25 mins   (b)   55 mins   **(c)**   80 mins   **(d)**   1 hour 20 mins

7.   **(a)**   45 mins   **(b)**   30 mins   **(c)**   1 hour 15 mins

8.   **(a)**   30 mins   **(b)**   Seven Days

9.   25 mins

10.   **(a)**   1 hour 55 mins; 40 mins; 45 mins   **(b)**   3 hours 20 mins

11.   **(a)**   1hour 45 mins **(b)**   2 hours 45 mins   **(c)**   Sportscene   **(d)**   4 hours 30 mins

Timetables (3)

1.   **(a)**   30 mins   **(b)**   2 hours   **(c)**   45 mins
       (d)   1 hour 45 mins   **(e)**   4 hours
2.   30 mins
3.   3 hours 30 mins
4.   **(a)**   11·15 a.m.   **(b)**   11·50 a.m.   **(c)**   25 mins
5.   **(a)**   Abseiling   **(b)**   105 mins
       (c)   15 mins   **(d)**   5 mile run, breakfast, planning for midnight hike
6.   **(a)**   5·30 p.m.   **(b)**   1 hour 30 mins   **(c)**   7·30 p.m.
7.   12·45 a.m. / 3 hours 15 mins; 12·30 a.m. / 3 hours; 1·15 a.m. / 3 hours 45 mins
       (a)   Kieron   **(b)**   Daniel   **(c)**   45 mins

Ratio(1)

1.   **(a)**   £15 : £35   **(b)**   24kg : 56kg
       (c)   £25 : £10   **(d)**   192g : 48g

2.   **(a)**   Harry £10;   James £30;   Bill £80
       (b)   Susan £8;   Beth £20;   Jill £28

3.   **(a)**   £2380   **(b)**   £1860

4.   15 girls

5.   **(a)**   16g   **(b)**   Dave £206;   Frank £618

6.   **(a)**   30 cows   **(b)**   72 cows   **(c)**   Bill 27; Dan 36; George 9

<u>Ratio (2)</u>

1. **(a)** £18:£30 **(b)** £70:£30 **(c)** £8:£48 **(d)** £40:£10

   (e) £75:£45 **(f)** £40:£35 **(g)** £16:£20 **(h)** £100:£140

2. **(a)** £8:£24:£56 **(b)** £6:£9:£33 **(c)** £15:£20:£25 **(d)** £12:£24:£60

3. John £1360; David £2040

4. 20 girls

5. 21 bags of sand

6. **(a)** 40 dogs **(b)** 12 boys **(c)** 12 diamonds

   (d) John £3600; Dave £6000

7. **(a)** Xena 40 coins;   Joxar 8 coins

   (b) 72 coins

   (c) Xena 27 coins; Gabrielle 15 coins; Joxar 12 coins; Calisto 18 coins.

<u>Volume of a cube and cuboid</u>

1. **(a)** $27cm^3$ **(b)** $343cm^3$ **(c)** $8cm^3$ **(d)** $64cm^3$
   (e) $125cm^3$ **(f)** $1000cm^3$ **(g)** $216cm^3$ **(h)** $729cm^3$
   (i) $512cm^3$ **(j)** $2744cm^3$ **(k)** $1331cm^3$ **(l)** $8000cm^3$
2. **(a)** $60cm^3$ **(b)** $42cm^3$ **(c)** $280cm^3$ **(d)** $48cm^3$
   (e) $1600mm^3$ **(f)** $53{\cdot}9cm^3$ **(g)** $0{\cdot}36m^3$ **(h)** $45cm^3$
   (i) $800cm^3$ **(j)** $600cm^3$
3. **(a)** $120cm^3$ **(b)** $144cm^3$ **(c)** $6m^3$ **(d)** $2160cm^3$
   (e) $343cm^3$ **(f)** $360cm^3$ **(g)** $224{\cdot}1cm^3$ **(h)** $357{\cdot}76cm^3$
   (i) $510000mm^3$ **(j)** $7148{\cdot}5cm^3$
4. $7776\ cm^3$ **5.** 31 pupils
6. **(a)** $300\ 000\ 000cm^3$ **(b)** 300 000 litres

<u>Finding the area of a shape</u>

1. $14\ cm^2$ **2.** $30\ cm^2$ **3.** $54\ cm^2$ **4.** $188\ cm^2$
6. $380\ cm^2$ **6.** $338\ cm^2$ **7.** $664\ cm^2$ **8.** $71{\cdot}28\ cm^2$
9. $16\ cm^2$

<u>Finding the perimeter of a shape</u>

1. **(a)** 16cm **(b)** 24cm **(c)** 38cm **(d)** 64cm

   (e) 90cm **(f)** 104cm **(g)** 144cm **(h)** 55·6cm

   (i) 60cm

2. **(a)** 73·8cm **(b)** 264cm **(c)** 133·4cm

   (d) 58·2cm **(e)** 161·4m

Calculate rate

1.	**(a)**	£4.49	**(b)**	£3.50	**(c)**	£0.32	**(d)**	£9
	(e)	£0.15	**(f)**	£8.50	**(g)**	£0.89	**(h)**	£0.19
2.	**(a)**	65 miles	**(b)**	24 km	**(c)**	700 cars	**(d)**	14 words
	(e)	3 pints	**(f)**	0·2 kg	**(g)**	£3.60	**(h)**	1·2 km
3.	**(a)**	5kg pack	**(b)**	first car	**(c)**	Jim	**(d)**	Paula
	(e)	choc.eclair	**(f)**	doll	**(g)**	machine A		

Best Buy

	(a)	3 litres	**(b)**	1·5 litres	**(c)**	550g	**(d)**	750g
	(e)	0·7 litres	**(f)**	500ml	**(g)**	0·8kg	**(h)**	600g
	(i)	Twin Pack	**(j)**	550ml				

Direct Proportion

1.	**(a)**	2000 sheets	**(b)**	90 p	**(c)**	67·8 g	**(d)**	910 kcal
	(e)	84 m	**(f)**	4200 ml	**(g)**	400 p	**(h)**	11.4Euros
2.	**(a)**	700	**(b)**	£2.25	**(c)**	7 kg	**(d)**	110 km
	(e)	17·1 cm	**(f)**	£164	**(g)**	3 hours	**(h)**	£190.75
	(i)	£504	**(j)**	3 ¼ hours	**(k)**	£56.25		
3.	**(a)**	£60	**(b)**	175 miles				
4.	65·6 km		**5**.	20·25 cm	**6**.	4·34 cm		
7.	34 books		**8**.	£2.56, £2.24, £2.25, £3.60, £0.48 Total = £11.13				

Direct Proportion again

1.	**(a)**	600g	**(b)**	150g	**(c)**	450g		
2.	**(a)**	42p	**(b)**	£1.26	**(c)**	£4.62		
3.	2·3kg							
4.	**(a)**	£7.02	**(b)**	79·8mm	**(c)**	22·8mm	**(d)**	9kg
5.	**(a)**	£13.20	**(b)**	£633.60				
6.	£258							
7.	27 litres							
8.	9 books							
9.	£124							

Hire Purchase

1. **(a)** **(i)** £369 **(ii)** £39   **(b)** **(i)** £135 **(ii)** £17

    (c) **(i)** £305 **(ii)** £26   **(d)** **(i)** £424 **(ii)** £34

    (e) **(i)** £566 **(ii)** £56   **(f)** **(i)** £474 **(ii)** £25

    (g) **(i)** £325 **(ii)** £42   **(h)** **(i)** £550.40 **(ii)** £51.40

2. £561.95; £534.15; £510.35.

3. £120

4. **(a)** **(i)** £45 **(ii)** £501 **(iii)** £51

    (b) **(i)** £78 **(ii)** £870 **(iii)** £90

    (c) **(i)** £39 **(ii)** £240 **(iii)** £45

    (d) **(i)** £55.55 **(ii)** £429.90 **(iii)** £59.90

    (e) **(i)** £82 **(ii)** £499.60 **(iii)** £89.60

    (f) **(i)** £138 **(ii)** £1077.60 **(iii)** £157.60

    (g) **(i)** £821.25 **(ii)** £4157.25 **(iii)** £872.25

    (h) (i) £22.90 **(ii)** £254.20 **(iii)** £25.20

5. £7200; £8240; £8496 - £1296   **6.**   £120

Holiday Money (1)

1. **(a)** $7.75 **(b)** $48.05 **(c)** $716.10 **(d)** $31

    (e) $68.20 **(f)** $13.95 **(g)** $320.85 **(h)** $55.80

    (i) $100.75 **(j)** $6.98 **(k)** $132.55 **(l)** $27.13

2. **(a)** 4.64€; 600¥ **(b)** 56.84€; 7350¥ **(c)** 214.60€; 27750¥
    (d) 34.80€; 4500¥ **(e)** 31.32€; 4050¥ **(f)** 8.12€; 1050¥

    (g) 352.64€; 45600¥ **(h)** 60.32€; 7800¥ **(i)** 96.28€; 12450¥
    (j) 11.60€; 1500¥ **(k)** 0.58€; 75¥ **(l)** 21.46€; 2775¥

3. **(a)** 10.20$ **(b)** 96.90$ **(c)** 32.30$ **(d)** 350.20$

    (e) 229.50$ **(f)** 39.10$ **(g)** 3.40$ **(h)** 130.90$

    (i) 57.80$ **(j)** 816$ **(k)** 0.85$ **(l)** 50.15$

4. 127.60€; 109.04€

5. **(a)** $852.50 **(b)** $52.50

6. **(a)** 11250¥ **(b)** 9830¥

Holiday Money (2)

1.   **(a)**   £5   **(b)**   £16   **(c)**   £37   **(d)**   £47

    (e)   £64   **(f)**   £1030   **(g)**   £214   **(h)**   £1340

    (i)   £45.20   **(j)**   £63.10   **(k)**   £1094.30   **(l)**   £7.25

2.   **(a)**   £30   **(b)**   £52.50   **(c)**   £270   **(d)**   £97.50

    (e)   £750   **(f)**   £1275   **(g)**   £2625   **(h)**   £14250

    (i)   £2460   **(j)**   £1125   **(k)**   £7.50   **(l)**   £148.50

3.   **(a)**   £5.18   **(b)**   £2.59   **(c)**   £621.89   **(d)**   £388.68

    (e)   £269.49   **(f)**   £93.28   **(g)**   £36.28   **(h)**   £1036.49

    (i)   £24.88   **(j)**   £9.87   **(k)**   £64.26   **(l)**   £4.66

4.   £9.49; £14.63; £38.92

5.   £9.99

6.   **(a)**   3724R   **(b)**   380R   **(c)**   £25

Measurements (length)

1.   **(a), (b), (c), (d)**   pupil's own ideas

2.   **(a)**   m   **(b)**   mm   **(c)**   km   **(d)**   cm

3.   **(a)**   trundle wheel   **(b)**   tape measure   **(c)**   ruler   **(d)**   metre stick / tape measure

4.   **(a)** and **(b)**   pupil's own ideas

5.   **(a)**   6cm / 60mm   **(b)**   7·3cm / 73mm

    (c)   3·5cm / 35mm   **(d)**   2·2cm / 22mm

6.   **(a)**   6·1cm   **(b)**   4·9cm   **(c)**   8·4cm   **(d)**   7·6cm

Measurements (volume and capacity)

1.   **(a)**   gram   **(b)**   litre   **(c)**   kilogram   **(d)**   millilitre

2.   tennis ball, golf ball, football, cricket ball, ten-pin bowling ball

3.   petrol tank, baby bath, kettle, cup of coffee, perfume bottle

Measurements (volume and capacity)

1. weight marked
2. weight marked
3. length marked
4. length marked
5. volume marked

6. **(a)** 6·2cm **(b)** line extended **(c)** 3cm

7. **(a)** 3·7cm **(b)** line extended **(c)** 3·6cm

8. **(a)** 8·1cm **(b)** line reduced **(c)** 5·5cm

9. **(a)** 2·5kg **(b)** 1·25kg **(c)** 0·15kg

 (d) 0·275kg **(e)** 1·3kg **(f)** 0·7kg

10. **(a)** 140ml **(b)** 125ml **(c)** 75ml

11. **(a)** 38° **(b)** 123° **(c)** 105°

 (d) 53° **(e)** 25° **(f)** 143°

 (g) 36° **(h)** 110° **(i)** 16°

 (j) 114°

Conversions

1. **(a)** 4kg **(b)** 34kg **(c)** 90kg **(d)** 36kg
   (e) 3·5kg **(f)** 4·8kg **(g)** 3·7kg **(h)** 2·6kg
   (i) 3·67kg **(j)** 8·635kg **(k)** 2·082kg **(l)** 1·07kg **(m)** 0·34kg
   (n) 0·78kg **(o)** 0·375kg **(p)** 0·863kg **(q)** 0·065kg **(r)** 0·023kg **(s)** 0·099kg **(t)** 0·021kg **(u)** 0·003kg **(v)** 0·007kg **(w)** 0·009kg **(x)** 0·001kg

2. **(a)** 8000g **(b)** 19000g **(c)** 50000g **(d)** 75000g
   (e) 4642g **(f)** 1635g **(g)** 7482g **(h)** 1077g
   (i) 349g **(j)** 653g **(k)** 420g **(l)** 680g
   (m) 3540g **(n)** 5650g **(o)** 10020g **(p)** 16670g

   (q) 4800g **(r)** 7200g **(s)** 45400g **(t)** 21600g
   (u) 530g **(v)** 87g **(w)** 90g **(x)** 1g

3. **(a)** 3l **(b)** 3·8l **(c)** 60l **(d)** 83l

   (e) 6·7l **(f)** 2·7l **(g)** 1·7l **(h)** 9·2l
   (i) 3·89l **(j)** 3·728l **(k)** 5·087l **(l)** 2·085l
   (m) 0·81l **(n)** 0·27l **(o)** 0·281l **(p)** 0·928l
   (q) 0·029l **(r)** 0·01l **(s)** 0·082l **(t)** 0·094l
   (u) 0·006l **(v)** 0·001l **(w)** 0·007l **(x)** 0·004l

4.   **(a)** 4000ml   **(b)** 22000ml   **(c)** 80000ml   **(d)** 65000ml

    (e) 4642ml   **(f)** 1635ml   **(g)** 7482ml   **(h)** 1077ml

    (i) 756ml   **(j)** 831ml   **(k)** 810ml   **(l)** 620ml

    (m) 1570ml   **(n)** 2910ml   **(o)** 12090ml   **(p)** 24270ml

    (q) 1300ml   **(r)** 6900m   **(s)** 21100ml   **(t)** 98100ml

    (u) 76ml   **(v)** 722ml   **(w)** 60ml   **(x)** 5ml

5.   **(a)** 4m   **(b)** 3m   **(c)** 12m   **(d)** 114m
    (e) 0·6m   **(f)** 0·7m   **(g)** 0·91m   **(h)** 0·28m
    (i) 52·3m   **(j)** 28·71m   **(k)** 10·09m   **(l)** 33·22m
    (m) 0·08m   **(n)** 0·07m   **(o)** 0·01m   **(p)** 0·05m

6.   **(a)** 700cm   **(b)** 3600cm   **(c)** 12000cm   **(d)** 13400cm

    (e) 57000cm   **(f)** 2300cm   **(g)** 1230cm   **(h)** 906cm

    (i) 640cm   **(j)** 60cm   **(k)** 205cm   **(l)** 780cm

    (m) 798cm   **(n)** 400·7cm   **(o)** 9cm   **(p)** 70cm

7.   **(a)** 700cm   **(b)** 360cm   **(c)** 1020cm   **(d)** 1140cm

    (e) 57cm   **(f)** 23cm   **(g)** 12·3cm   **(h)** 90·6cm

    (i) 6cm   **(j)** 2cm   **(k)** 2·5cm   **(l)** 7·8cm

    (m) 0·7cm   **(n)** 0·4cm   **(o)** 0·2cm   **(p)** 0·1cm

8.   **(a)** 80mm   **(b)** 30mm   **(c)** 67mm   **(d)** 69·8mm

    (e) 3·4mm   **(f)** 17·8mm   **(g)** 25·9mm   **(h)** 30·9mm

9.   **(a)** 6km   **(b)** 1·5km   **(c)** 29km   **(d)** 4·87km

    (e) 0·536km   **(f)** 0·65km   **(g)** 0·021m   **(h)** 0·007m

10.   **(a)** 3000m   **(b)** 12000m   **(c)** 3800m   **(d)** 4670m

    (e) 216m   **(f)** 640m   **(g)** 370m   **(h)** 17m

11.   **(a)** 7m   **(b)** 3·6m   **(c)** 10·2m   **(d)** 11·4m
    (e) 0·57m   **(f)** 0·23m   **(g)** 0·123m   **(h)** 0·906m
    (i) 0·06m   **(j)** 0·02m   **(k)** 0·025m   **(l)** 0·078m
    (m) 0·007m   **(n)** 0·004m   **(o)** 0·002m   **(p)** 0·001mm

12.   **(a)** 9000mm   **(b)** 2000mm   **(c)** 3300mm   **(d)** 5340mm

    (e) 234mm   **(f)** 780mm   **(g)** 990mm   **(h)** 9mm

13.   **(a)** 7km   **(b)** 1·5km   **(c)** 2·3km   **(d)** 0·567km
    (e) 0·5361km   **(f)** 0·0470km   **(g)** 0·0066km   **(h)** 0·0009km

14.   **(a)** 200000cm   **(b)** 2300000cm   **(c)** 350000cm   **(d)** 153000cm

    (e) 33300cm   **(f)** 67400cm   **(g)** 55700cm   **(h)** 4600cm

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Reading Tables

1. **(a)** £5.50 **(b)** £5 **(c)** £23

2. **(a)** £628 **(b)** £832.50 **(c)** £2061.50

3. **(a)** 19th **(b)** Thursday **(c)** 11 nights **(d)** 7th

4. **(a)** 13km **(b)** 27km **(c)** 51km

5. **(a)** **(i)** 50p **(ii)** £9.60 **(iii)** £24 **(iv)** £7.35

    (b) £4.50 for 50 copies; £4.40 for 55 copies so Jamie was correct **(c)** £1.80

6. **(a)** 38 **(b)** 41 **(c)** 36

7. **(a)** **(i)** 5 **(ii)** 8 **(iii)** 4

    (b) 14 **(c)** £146.50

8. **(a)** 230 people **(b)** 24 **(c)** 167 **(d)** more people choose to cruise or any acceptable comment

9. **(a)** £682.36 **(b)** £34.12 **(c)** £329.47 **(d)** £8000; 36 months, without loan protection

    (e) £10000 for 36 months **(f)** £15000 for 48 months

10. **(a)** £15 **(b)** 18·6% **(c)** 1·61%

    (d) £4 or 4% **(e)** £7.50 **(f)** £6

11. **(a)** 16days

    (b) **(i)** £4438 **(ii)** £8140 **(iii)** £8341 **(iv)** £2494

12. **(a)** £4348 **(b)** £2946 **(c)** £1730.40 **(d)** £1113

Interpreting statistical diagrams

1. **(a)** 6 **(b)** ready salted **(c)** 82 **(d)** roast chicken

    (e) ready salted, salt & vinegar, prawn cocktail, cheese & onion, smoky bacon,

    roast chicken

2. **(a)** Tuesday **(b)** Wednesday **(c)** 12

3. **(a)** 7 **(b)** 3 **(c)** 6 **(d)** 35

4. **(a)** **(i)** ½ **(ii)** ¼ **(iii)** $^1/_8$ **(iv)** $^1/_8$

    (b) 300 **(c)** 150

5. **(a)** **(i)** ¼ **(ii)** ½ **(iii)** $^1/_{20}$ **(iv)** $^1/_5$

    (b) action

6. **(a)** **(i)** $^1/_{10}$ **(ii)** $^2/_5$ **(iii)** $^3/_{10}$ **(iv)** $^1/_5$

(b) walk **(c)** 12

7. **(a)** December **(b)** 6·5, 11 **(c)** 2·5

8. (a) time gets less **(b)** practice makes perfect

9. **(a)** 2·9 kg **(b)** 4·6, 5·7, 6·8 **(c)** 1·2 kg **(d)** 11 and 12

10. **(a)** 16 plants **(b)** 63cm **(c)** 56cm, 57cm, 59cm **(d)** ¼

11. **(a)**
Cost of CD Player (£)
```
6 | 6 8
7 | 1 3 5 5 5 8 9
8 | 0 1 3
9 | 2
```
$n = 13$ 7 | 4 represents £74

(b) £75

12. **(a)** 45 days **(b)** last year 28 days; this year 17 days
(c) Absence rate appears to have decreased since last year. or equivalent.

Interpret Statistics

1. **(a)**

Number of Matches per box

Brighto   *Sparky*
```
              | 2 | 9
    9 9 8 7 6 | 3 | 8 9
    8 7 6 5 1 | 4 | 0 2 9 9
        8 2 0 | 5 | 1 2 6 7 8
            1 | 6 | 2 4
```
$n = 14$ 4 | 8 represents 48 matches $n = 14$

(b) "Both boxes are very poor. Brighto is possibly the better of the two." or equivalent.

2. **(a)** size 7 **(b)** mode **3.** Yes. Mean = 48, median = 48
4. **(a)** 26, 25, no mode **(b)** below **(c)** 4, 25, 25 **(d)** above the mean
5. **(a)** 17000, 15000, 15000 **(b)** median
6. **(a)** 785 **(b)** 36110
7. **(a)** A: 2 teams of 14, 15, 16, 17, 18   B: 14, 14, 15, 16, 18 & 14, 15, 16, 16, 17
(b) No. Mean age = 16·2
8. mode (22) **9.** **(a)** £21.22 **(b)** less than mean (just over half)

Probability

1. **(a)** A **(b)** A **(c)** both same
    (d) **A** **(e)** B **(f)** B - with reasons

2. **(a)** **(i)** 40 **(ii)** 40

    (b) **(i)** 12 **(ii)** 4

    (c) **(i)** 39 **(ii)** 36 **(iii)** 3

    (d) **(i)** 28 **(ii)** 12 **(iii)** 4

3. **(a)** ¾ **(b)** 16

4. **(a)** 0·76 **(b)** 18