S2 Block 3 Assessment Revision

Distance, Speed and Time

1. How long is it from:
    a) 4:15 pm to 10:15pm
    b) Midnight to 2:30pm
    c) 8:45 am to 11:20 am
    d) 17:35 to 21:30
    e) 13:15 to 21:05
    f) 9 am to 8:10 pm
    g) 4:30 pm to 9:20 pm
    h) 9 pm Wednesday to 1:30 am Thursday
    i) 11:30 pm Monday to 3:15 am Tuesday
    j) 22:45 Saturday to 10:45 Monday?

2. Use the correct formula to answer these questions:
    a) Distance 115 miles. Time 5 hours. Find the average speed.
    b) Distance 180 km. Speed 45 km/h. Find the time taken.
    c) Speed 65 mph. Time 4 hours. Find the distance travelled.
    d) Time 14 hours. Distance 280 miles. Find the average speed.
    e) Speed 200 km/h. Distance 4800 km. Find the time taken.
    f) Time 7 hours. Speed 308 mph. Find the distance covered.
    g) Distance 320 km. Speed 40 km/h. Find the time taken.

3. A person drove for 4 hours, driving at an average speed of 65 km/h. What distance did they cover?

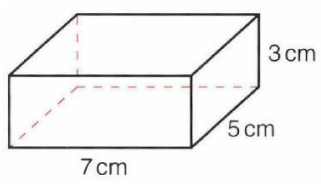
4. A tall ship took 3 hours to sail the 54 miles to the island of treasure. What was its average speed?

5. A snail moves at a very slow speed of 5 centimetres per minute. How long would it take to cross a path which is 60 centimetres wide?

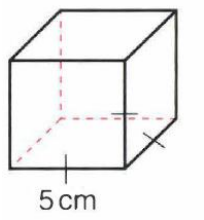
3 Dimensions

1. Draw nets of these shapes:

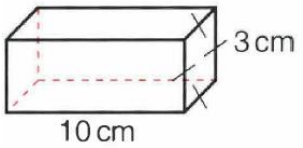
a)



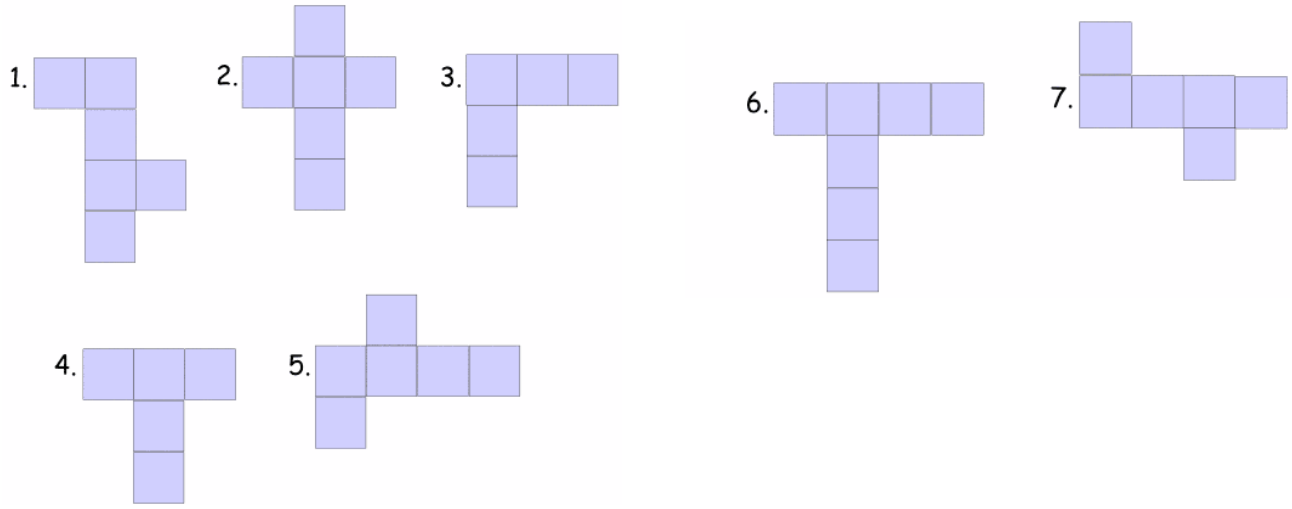
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c)

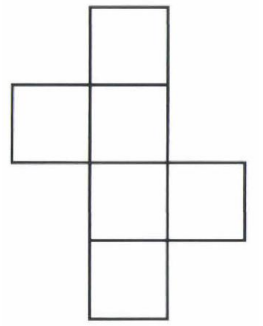


2. Which of these nets could be folded into a cube?

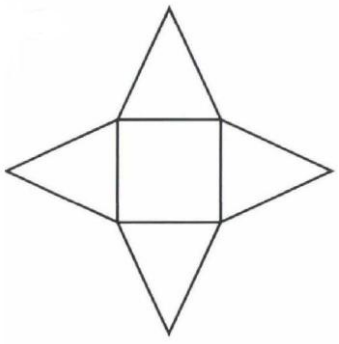


3. Which 3d shape could be made by each net below?

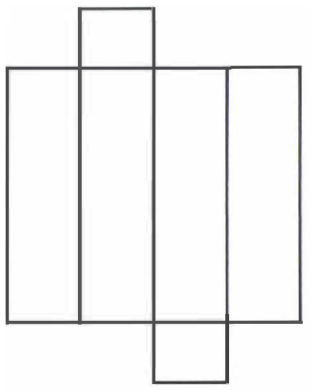
a)



b)



c)



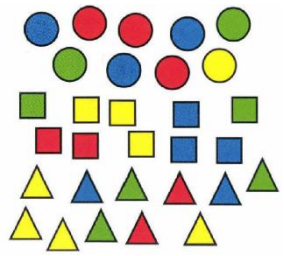
Ratio

1. If 8 calculators cost £24, how much would one calculator cost?

2. If one cupcake costs £2, how much would 12 cupcakes cost?

3. If one episode of a tv show lasts 40 minutes, how long would three episodes last?

4. Write the ratio of
   a) circles to squares
   b) squares to triangles
   c) triangles to circles



5. Simplify each ratio

(a) 4 : 14	(b) 6 : 15	(c) 5 : 25	(d) 18 : 48	(e) 28 : 49
(f) 28 : 4	(g) 18 : 12	(h) 48 : 16	(i) 96 : 24	(j) 88 : 33
(k) 42 : 72	(l) 160 : 28	(m) 170 : 45	(n) 144 : 60	(o) 140 : 28

6. The ratio of blue to red cars is 1 : 4. If 8 cars were painted blue, how many were red?

7. The ratio of petrol to diesel cars in a garage is 7:3. How many petrol cars were there when there 27 diesel cars?

8. A chocolate cake recipe states that flour and sugar should be mixed in the ratio 5 : 3. If 120 grams of sugar are used, what weight of flour is required?

9. Green paint is made by mixing yellow paint with blue paint in the ratio 3 : 4. How many tins of yellow paint are needed to make this shade if 16 tins of blue are used?

10. Share 42 in the ratio 3 : 4.

11. Share £100 in the ratio 14 : 11

12. Sawdales High School need 330 litres of orange drink for the Fun day. Orange concentrate and water are mixed in the ratio 2 : 9 to make the drink. How much of each will be needed?

13. In Millarcraig Gold Club the ratio of women to men is 3 : 5. How many members are women if the total membership is 312?

Fractions

1. Simplify these fractions as much as possible

(a) $\frac{5}{10}$ (b) $\frac{7}{14}$ (c) $\frac{3}{9}$ (d) $\frac{5}{18}$ (e) $\frac{11}{33}$ (f) $\frac{3}{30}$ (g) $\frac{5}{25}$

(h) $\frac{7}{49}$ (i) $\frac{15}{20}$ (j) $\frac{9}{12}$ (k) $\frac{14}{49}$ (l) $\frac{3}{39}$ (m) $\frac{9}{56}$ (n) $\frac{17}{51}$

2. Change these mixed numbers to improper fractions:

(a) $2\frac{1}{2}$ (b) $3\frac{3}{4}$ (c) $10\frac{3}{5}$ (d) $6\frac{1}{8}$ (e) $9\frac{2}{3}$ (f) $2\frac{7}{10}$

3. Change these improper fractions to mixed numbers:

(a) $\frac{10}{3}$ (b) $\frac{19}{4}$ (c) $\frac{31}{6}$ (d) $\frac{11}{2}$ (e) $\frac{37}{5}$ (f) $\frac{51}{8}$

4. Change these improper fractions to mixed numbers and simplify where possible:

(a) $\frac{21}{6}$ (b) $\frac{14}{4}$ (c) $\frac{26}{8}$ (d) $\frac{42}{10}$ (e) $\frac{21}{9}$ (f) $\frac{30}{8}$

5. Add or subtract the fractions below and leave your answer as a fraction in its simplest form.

(a) $\frac{5}{7} + \frac{4}{7}$ (b) $\frac{1}{9} + \frac{7}{9}$ (c) $\frac{5}{8} - \frac{3}{8}$ (d) $\frac{3}{5} + \frac{3}{5}$ (e) $\frac{9}{11} - \frac{4}{11}$ (f) $\frac{3}{10} + \frac{1}{10}$

6. Add or subtract the mixed numbers below and leave your answer as a fraction in its simplest form.

(a) $4\frac{1}{2} + 2\frac{1}{2}$ (b) $7\frac{3}{4} - 3\frac{1}{4}$ (c) $5\frac{1}{3} + 1\frac{1}{3}$ (d) $3\frac{7}{9} + 2\frac{4}{9}$ (e) $9\frac{3}{4} - 5\frac{1}{4}$ (f) $3\frac{2}{7} + 8\frac{3}{7}$

Algebra

1. Simplify these expressions:

(a) $3a + 2b + 4a + b$ (b) $7y + 5y + 2h + 2h$ (c) $g + 8a + 2a + g$

(d) $7m + 7p + 8m + p + 2p$ (e) $9e + 2 + e + 2$ (f) $4 + 3a + 2a + 8$

(g) $2y + 4 + 3y - 1$ (h) $8 + 3w - w - 3$ (i) $5 - 4s - 2 + 10s$

(j) 3 x u (k) 7 x w (l) a x a (m) b x b x b (n) c x c x c x c

2. Multiply out the brackets:

(a) $5(y + 3)$ (b) $4(a + 2)$ (c) $8(w + 10)$ (d) $3(x - 7)$

(e) $9(s - 1)$ (f) $2(8 - t)$ (g) $7(4 + h)$ (h) $10(a + 2b + 3c)$

(i) $4(3y + 2)$ (j) $5(2p - 1)$ (k) $3(7a + 2)$ (l) $9(2x - 5)$

3. Multiply out the brackets and collect the like terms:

a) $3(2x - 1) + 8$ b) $7(8x + 3) - 5x$ c) $10 + 4(6x + 11)$ d) $12x + 5(2x - 3)$

4. Solve these equations:

a $x + 3 = 7$ b $x + 9 = 12$ c $x + 1 = 17$

d $y + 11 = 21$ e $y - 3 = 6$ f $y - 1 = 21$

g $p - 10 = 0$ h $p - 50 = 10$ i $p + 6 = 6$

5. Solve these equations:

a $3x = 6$ b $4m = 20$ c $5p = 30$

d $7q = 28$ e $6t = 36$ f $6a = 60$

g $3b = 36$ h $8d = 48$ i $2x = 24$

6. Solve these equations:

a $2x + 3 = 5$ b $3x + 6 = 21$ c $4x + 7 = 23$

d $5x + 2 = 42$ e $2x - 4 = 6$ f $3x - 3 = 24$

g $4x - 1 = 35$ h $3x - 6 = 0$ i $6x - 1 = 53$

7. If a = 7 b = 10 c = 3 d = 8 and e = 15

Find the value of each expression:

a) ab b) bcd c) 5b d) c + e e) b + 3d f) 9a –

Answers

Distance, Speed and Time

1. a) 6 hours b) 14 hours 30 mins c) 2 hours 35 mins d) 3 hours 55 mins
   e) 7 hours 50 mins f) 11 hours 10 mins g) 4 hours 50 mins h) 4 hours 30 mins
   i) 3 hours 45 mins j) 36 hours

2. a) 23 mph b) 4 hours c) 260 miles d) 20 mph e) 24 hours f) 2156 miles g) 8 hours

3. 260 km 4. 18 mph 5. 12 minutes

3 Dimensions

2. 1, 2, 5 and 7 make cubes.
   6 will also make a cube, but the base will be doubled, so it is not a proper net.
3. a) cube b) square-based pyramid c) cuboid

Ratio

1. £3 2. £24 3. 120 mins = 2 hours
4. a) 9 : 10 b) 10 : 11 c) 11 : 9
5. a) 2: 7 b) 2 : 5 c) 1 : 5 d) 3 : 8 e) 4 : 7 f) 7 : 1
   g) 3 : 2 h) 3 : 1 i) 4 : 1 j) 8 : 3 k) 7 : 12 l) 40 : 7
   m) 34 : 9 n) 12 : 5 o) 5 : 1

6. 32 cards 7. 63 8. 200g 9. 12 10. 18 : 24 11. £56 : £44
12. 60 litres of concentrate : 270 litres of water 13. 117 women

Fractions

1. a) $\frac{1}{2}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $\frac{5}{18}$ e) $\frac{1}{3}$ g) $\frac{1}{10}$ f) $\frac{1}{5}$ h) $\frac{1}{7}$ i) $\frac{3}{4}$ j) $\frac{3}{4}$ k) $\frac{2}{7}$ l) $\frac{1}{13}$ m) $\frac{9}{56}$ n) $\frac{1}{3}$
2. a) $\frac{5}{2}$ b) $\frac{15}{4}$ c) $\frac{53}{5}$ d) $\frac{49}{8}$ e) $\frac{29}{30}$ f) $\frac{27}{10}$
3. a) $3\frac{1}{3}$ b) $4\frac{3}{4}$ c) $5\frac{1}{6}$ d) $5\frac{1}{2}$ e) $7\frac{2}{5}$ f) $6\frac{3}{8}$
4. a) $3\frac{3}{6} = 3\frac{1}{2}$ b) $3\frac{2}{4} = 3\frac{1}{2}$ c) $3\frac{2}{3} = 3\frac{1}{4}$ d) $4\frac{2}{10} = 4\frac{1}{5}$ e) $2\frac{3}{9} = 2\frac{1}{3}$ f) $3\frac{6}{8} = 3\frac{3}{4}$
5. a) $\frac{11}{7}$ b) $\frac{8}{9}$ c) $\frac{2}{8} = \frac{1}{4}$ d) $\frac{6}{5}$ e) $\frac{5}{11}$ f) $\frac{4}{10} = \frac{2}{5}$
6. a) $6\frac{2}{2} = 6 + 1 = 7$ b) $4\frac{2}{4} = 4\frac{1}{2}$ c) $6\frac{2}{3}$ d) $5\frac{11}{9} = 6\frac{2}{9}$ e) $4\frac{2}{4} = 4\frac{1}{2}$ f) $11\frac{5}{7}$

Algebra

1. a) 7a + 3b b) 12y + 4h c) 10a + 2g d) 15m + 10p e) 10e + 4 f) 5a + 12
   g) 5y + 3 h) 2w + 5 i) 6s + 3 j) 3u k) 7w l) a^2 m) b^3 n) c^4
2. a) 5y + 15 b) 4a + 8 c) 8w + 80 d) 3x – 21 e) 9s – 9 f) 16 – 2t
   g) 28 + 7h h) 10a + 20b + 30c i) 12y + 8 j) 10p – 5 k) 21a + 6 l) 18x – 45
3. a) 6x + 5 b) 51x + 21 c) 24x + 54 d) 22x – 15
4. a) x = 4 b) x = 3 c) x = 16 d) y = 10 e) y = 9 f) y = 22 g) p = 10
   h) p = 60 i) p = 0
5. a) x = 2 b) m = 5 c) p = 6 d) q = 4 e) t = 6 f) a = 10 g) b = 12
   h) d = 6 i) x = 12
6. a) x = 1 b) x = 5 c) x = 4 d) x = 8 e) x = 5 f) x = 9 g) x = 9
   h) x = 2 i) x = 9
7. a) 70 b) 240 c) 50 d) 18 e) 34 f) 7