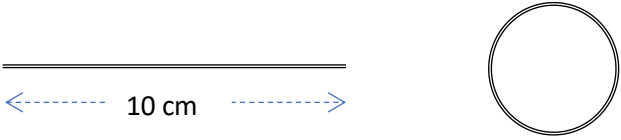
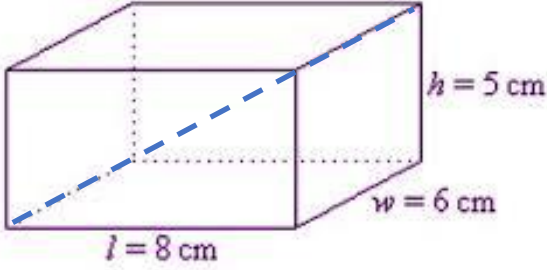
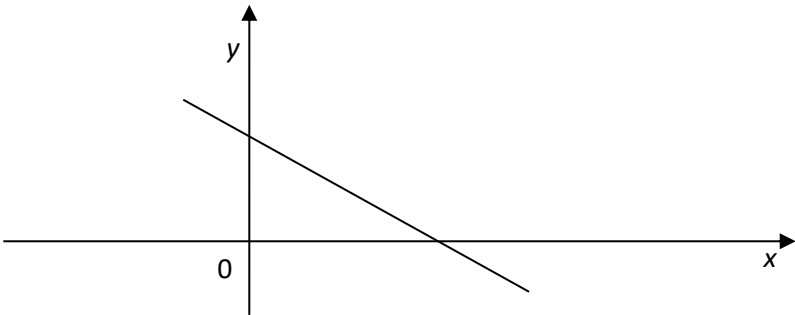


S3 Nat 5 Non-Calculator Revision - Paper C		30
1	<p>Three of the following have the same value</p> $\sqrt{2} \times \sqrt{12}, \quad 3\sqrt{8}, \quad \sqrt{24}, \quad 2\sqrt{6}$ <p>Which one is the odd one out? You must give a reason for your answer</p>	3
2	<p>A piece of gold wire which is 10 cm long is made into a circle</p>  <p>Show that the area of this circle is exactly $\frac{25}{\pi}$ square centimetres</p>	4
3	Factorise (a) $p^2 - 4q^2$ (b) $x^2 - 5x - 6$	4
4	Write $x^2 + 4x$ in the form $(x + a)^2 + b$	2
5	$F = 3d + a^3$ Change the subject of the formula to d	2
6	<p>This cuboid has a length of 8cm, a width of 6 cm and a height of 5cm. Calculate the length of the space diagonal of this cuboid (the dotted line). Give your answer as a surd in the simplest form</p> 	4
7	<p>Bacteria in a petri dish increase at a rate of 5% per hour. At 12 noon there are 4000 bacteria in the petri dish. How many bacteria will be present at 2.00 pm?</p>	3
8	Evaluate $1\frac{1}{8} \div \frac{3}{4}$	3
9	Find the equation of the straight line between the points D (-2, -3) and G (1, 9)	3
10	Sketch a possible graph to represent $y = mx + c$ where m is less than zero and c is greater than zero	2

Answers	
1	$\sqrt{24} = \sqrt{4}\sqrt{6} = 2\sqrt{6}$, $\sqrt{2} \times \sqrt{12} = \sqrt{24} = 2\sqrt{6}$ $3\sqrt{8}$ is the odd one out
2	$C = \pi D$, $10 = \pi D$, $D = \frac{10}{\pi}$, $r = \frac{5}{\pi}$ $A = \pi r^2 = \pi \left(\frac{5}{\pi}\right)^2$, therefore $A = \frac{25}{\pi}$
3	(a) $(p + 2q)(p - 2q)$ (b) $(x + 1)(x - 6)$ 4 $(x + 2)^2 - 4$
5	$3d + a^3 = F$, $3d = F - a^3$, $d = \frac{F - a^3}{3}$
6	The space diagonal is $\sqrt{8^2 + 6^2 + 5^2}$ $= \sqrt{64 + 36 + 25}$ $= \sqrt{125} = \sqrt{25}\sqrt{5} = 5\sqrt{5}$
7	$4000 + 5\% \text{ of } 4000 = 4000 + 200 = 4200$ $4200 + 5\% \text{ of } 4200 = 4200 + 210 = 4410$ bacteria at 2.00 pm
8	$1\frac{1}{8} \div \frac{3}{4} = \frac{9}{8} \times \frac{4}{3} = \frac{3}{2}$
9	The gradient $m = \frac{12}{3} = 4$ Substituting into $y = mx + c \rightarrow 9 = 4(1) + c$, $c = 5$ $y = 4x + 5$
10	

Extra Help	
1	Surds & Indices Page 171 Q7 Page 208 Q32
2	Indices
3	Arcs, Sectors and 3D solids
4	Factorising quadratics Page 66 Q2
5	Completing the square Page 211 Q60
6	Changing the subject of a formula Page 103 Q1
7	Pythagoras Page 47 Q4 & 5
8	Percentages Page 26 Q1, 2 & 3
9	Fractions Page 31 Q2 & 3
10	Straight lines Page 53 Q11 Page 54 Q3 & 4