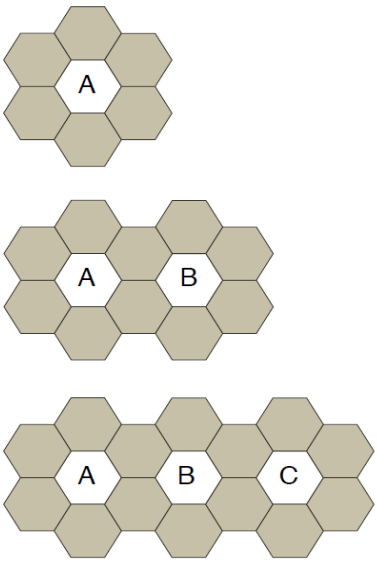
AVU Practice 2 Paper 2

Nat 4 Added Value Paper 2B

1. Solve algebraically

$$7x + 4 = 2x + 29$$

2 Carla is laying a path in a nursery school.
She is using a mixture of alphabet tiles and coloured tiles.



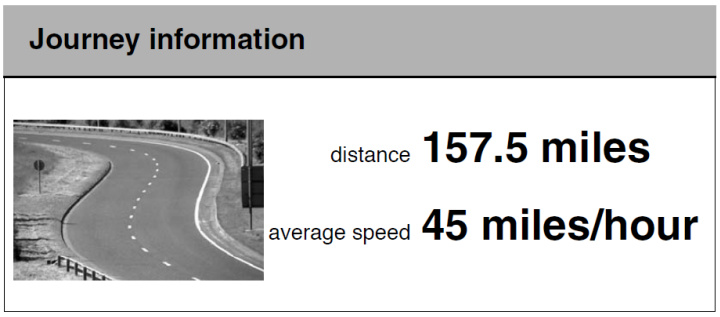
(*a*) Complete the table below.

Number of alphabet tiles (*a*)	1	2	3	4	5		12
Number of coloured tiles (*c*)	6	10					

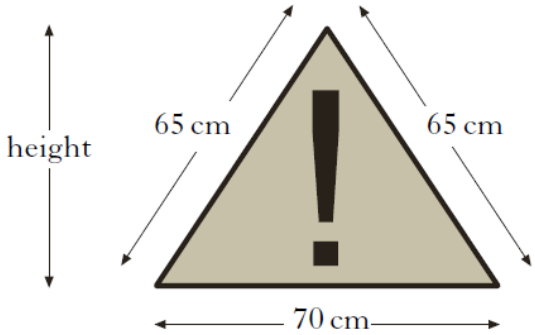
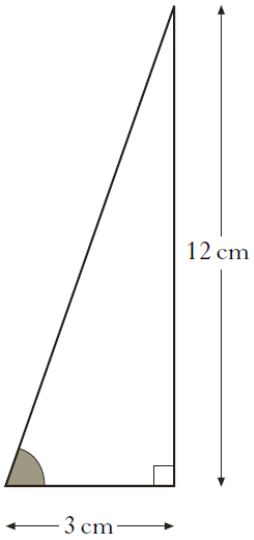
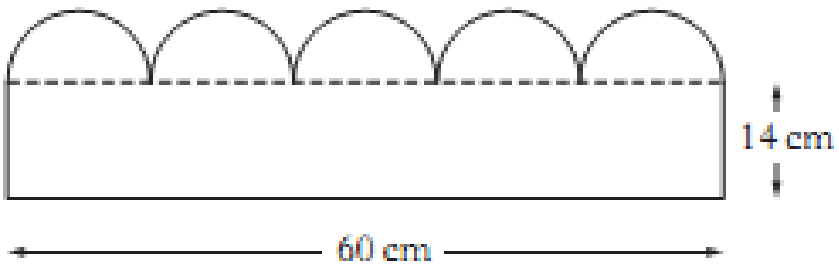
(*b*) Write down a formula for calculating the number of coloured tiles (*c*) when you know the number of alphabet tiles (*a*).

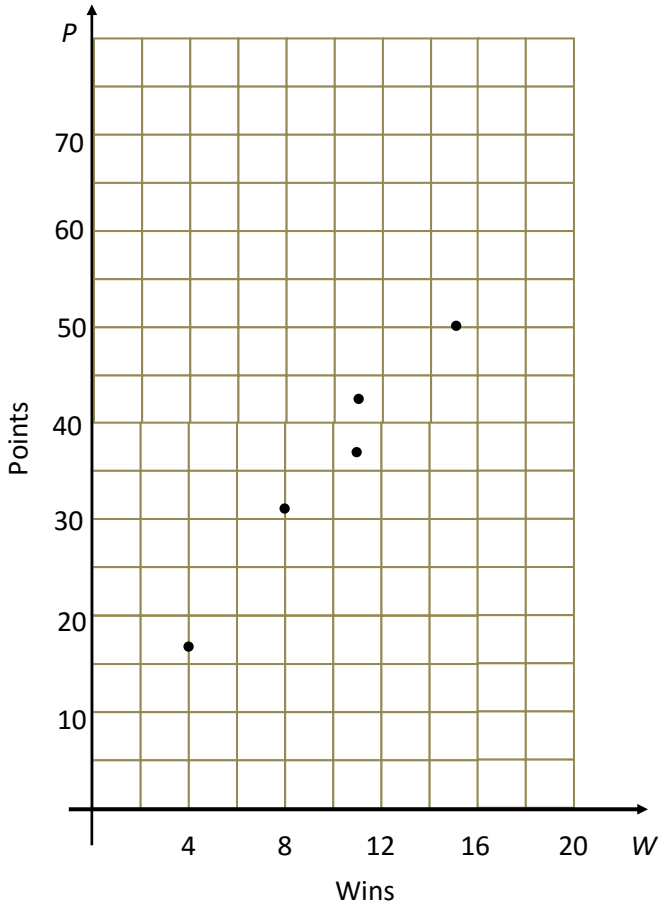
(*c*) Carla uses 86 coloured tiles to make the path.
How many alphabet tiles will be in the path?

3 Charlie's new car has an on-board computer.
At the end of a journey the car's computer displays the information below.



Use the information above to calculate the time he has taken for his journey.
Give your answer in hours and minutes.

4.	A warning sign is in the shape of an isosceles triangle.  Calculate the height of the sign.
5.	Larry has invented a device for checking that ladders are positioned at the correct angle. His design for the device is given below. The height of the triangle is 12cm and the base of the triangle is 3 cm. Calculate the size of the shaded angle. 
6.	A section of lawn edging consists of a rectangle with five equal Semi-circles on the top.  Calculate the area of the section in square centimetres. Give your answer correct to the **nearest square centimetre**.

7.	A selection of the number of games won and the total points gained by teams in the Scottish Premier League were plotted on this scattergraph.  (a) Two late results come in. One team won 14 games and scored 42 points. Another team won 6 games and scored 26 points. Mark each result on the scattergraph with an x. (b) Draw the line of best fit on the scattergraph. (c) Another team won 10 games. Use your line of best fit to estimate how many points that team were likely to have scored.
8.	Expand the brackets and simplify this expression $7(b - 4) + 3b$

Answers Paper 1B

1 1.48 + 0.75 = 6.35 6.35 – 4.8 = **1.55 litres of paint left over** 4.53 x 7 = **31.71**

2 200 ÷5 = 40 40 x 3 = **120 bottles of diet drink**

3 10% of 900 is 90 people 80% is **720 people**

4 Evidence of an ordered stem and leaf diagram

1	1 7
2	0 5 5 5 5 6 6 8 9
3	1 2 2 2 3 5
4	1 2 3

Key 3|2 means 32

mode is **25**

4 (a) **Indian** = $\frac{90}{360}$ x 300 = $\frac{1}{4}$ x 300 = **75 people**

(b) **Chinese** = $\frac{120}{360}$ x 300 = $\frac{1}{3}$ x 300 = **100 people**

Answers Paper 2B

1 5x + 4 = 29 → 5*x* = 25 → ***x* = 5**

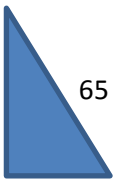
2 (a)

Number of alphabet tiles (*a*)	1	2	3	4	5		12
Number of coloured tiles (*c*)	6	10	**14**	**18**	**22**		**50**

(b) *c* = 4*a* + 2 (c) 86 = 4*a* + 2 → 84 = *4a* → ***a* = 21**

3 Time = $\frac{157.5}{45}$ = 3.5 hours Time is **3 hours and 30 minutes**

4 Form a right-angled triangle with correct dimensions



Use Pythagoras Theorem

$c^2 = a^2 + b^2$
$65^2 = 35^2 + b^2$
$b^2 = 3000$
$b = \sqrt{3000}$

height is **54.8 cm or 55 cm**

5 tan x = $\frac{A}{O}$ → tan *x* = $\frac{12}{3}$ → *x* = $\tan^{-1}$ (12/3) angle is **75.96° or 76°**

6. Area one semi-circle is $\frac{\pi 6^2}{2}$ = 56.5 cm² Area of five semi-circles 5 x 56.5 = 282.5 cm²

Area of rectangle 60 x 14 = 840 cm² **Total area 840 + 282.5 = 1122.5 cm²**

7 (a) Points added correctly
(b) Line of best fit drawn
(c) Approximately 35 point

8 7*b* – 28 + 3*b* → **10*b* - 28**