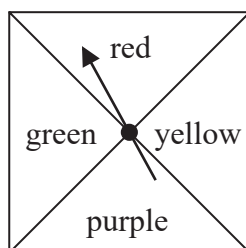


Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Here is a biased spinner.



When the spinner is spun once, the probabilities that it lands on red or on yellow or on green are given in the table.

<b>Colour</b>	red	yellow	purple	green
<b>Probability</b>	0.25	0.2		0.2

- (a) Work out the probability that the spinner lands on red or on yellow.

.....  
(1)

Yang is going to spin the spinner 300 times.

- (b) Work out an estimate for the number of times the spinner will land on purple.

.....  
(3)

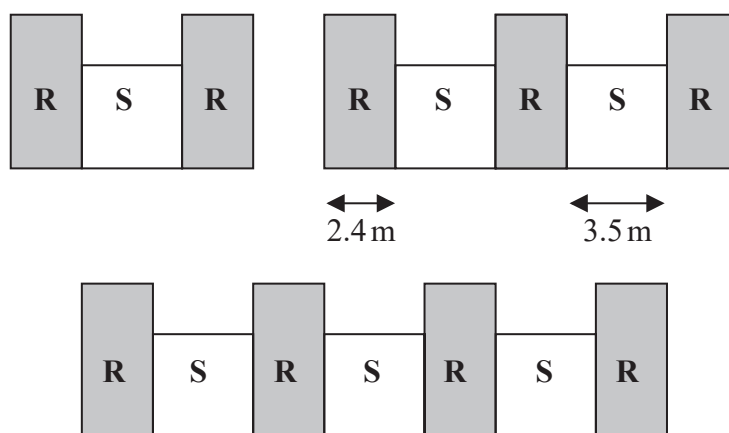
(Total for Question 1 is 4 marks)



2 In a warehouse there are two types of shelves, type **R** and type **S**.

These two types of shelves are arranged into shelving units that form a sequence of patterns.

Here are the first three terms in the sequence.



The width of each type **R** shelf is 2.4 m and the width of each type **S** shelf is 3.5 m

(a) Work out the total width of a shelving unit that has 6 type **R** shelves.

..... m  
(2)

A shelving unit has  $n$  type **R** shelves.  
The total width of this shelving unit is  $W$  metres.

(b) Find an expression for  $W$  in terms of  $n$   
Give your answer in its simplest form.

$W =$  .....  
(2)

**(Total for Question 2 is 4 marks)**



3 Here are five cards.

Each card has a number written on it.

15

7

-2

23

$x$

The mean of the five numbers is 12

Work out the value of  $x$

$x = \dots\dots\dots$

(Total for Question 3 is 3 marks)



4 The language department of a college has 180 students.  
Each student studies exactly one of French, German, Italian or Spanish.

15 students study French.

45% of the students study German.

Express the percentage of students studying Italian or Spanish as a percentage of those studying French or German.

.....%

**(Total for Question 4 is 4 marks)**

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5 (a) Expand  $3c^3(c + 4)$

.....  
(2)

(b) (i) Factorise  $x^2 + 8x - 9$

.....  
(2)

(ii) Hence, solve  $x^2 + 8x - 9 = 0$

.....  
(1)

(Total for Question 5 is 5 marks)

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6 Show that  $2\frac{2}{3} + 3\frac{3}{4} = 6\frac{5}{12}$

(Total for Question 6 is 3 marks)

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7 The diagram shows a solid cylinder made from iron.

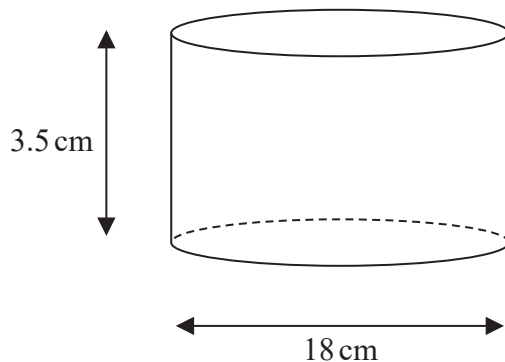


Diagram NOT accurately drawn

The cylinder has diameter 18 cm and height 3.5 cm  
The mass of the cylinder is 7.04 kg

Work out the density of the iron.  
Give your answer in  $\text{g/cm}^3$  correct to 2 significant figures.

.....  $\text{g/cm}^3$

(Total for Question 7 is 3 marks)



- 8 Jane bought a new car for \$18 000  
The car depreciates in value by 15% each year.

Work out the value of the car at the end of 4 years.  
Give your answer correct to the nearest \$

\$.....

**(Total for Question 8 is 3 marks)**

- 9 Solve the inequality  $3 - 4x \leq 11$

.....  
**(Total for Question 9 is 2 marks)**

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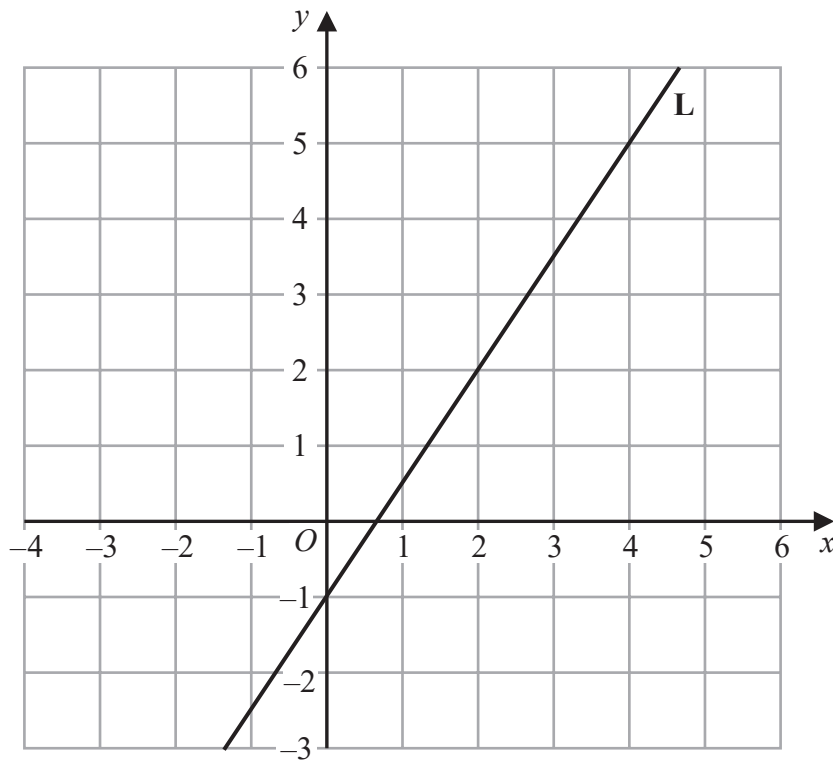


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10 Line L is drawn on the grid.



Find an equation for L  
Give your answer in the form  $y = mx + c$

.....  
(Total for Question 10 is 3 marks)

