



Write your name here

Surname

Other names

# Scholarship Paper 2024

**Subject: Mathematics Paper 3**

**Time: 1 Hour**

**You must have:**

Pen  
Pencil

**Total Marks**  
**70**

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
- Answer the questions in the answer sheets provided.
  - *there may be more space than you need.*

## Information

- The total mark for this paper is 70
- The marks for **each** question are shown in brackets
  - *use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly and in good English.
- Try to answer every question.
- Check your answers if you have time at the end.

**Questions**

**Q1.**

There are only blue cubes, red cubes and yellow cubes in a box.

The table shows the probability of taking at random a blue cube from the box.

<b>Colour</b>	blue	red	yellow
<b>Probability</b>	0.2		

The number of red cubes in the box is the same as the number of yellow cubes in the box.

(a) Complete the table.

(2)

There are 12 blue cubes in the box.

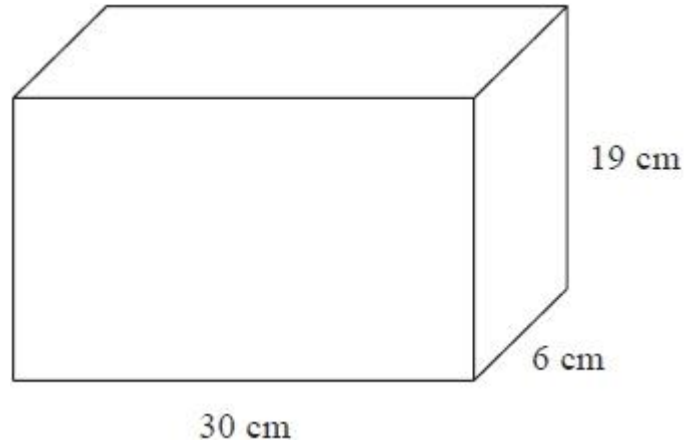
(b) Work out the total number of cubes in the box.

.....  
(2)

**(Total for question = 4 marks)**

**Q2.**

A container is in the shape of a cuboid.



The container is  $\frac{2}{3}$  full of water.

A cup holds 275 ml of water.

What is the greatest number of cups that can be completely filled with water from the container?

.....

**(Total for question = 4 marks)**

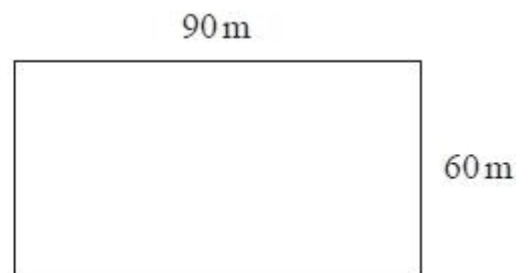
**Q3.**

A garden is in the shape of a rectangle 90 m by 60 m.

Flowers are grown in 40% of the garden.

The rest of the garden is grass.

Work out the area of the garden that is grass.



..... m<sup>2</sup>

**(Total for question = 4 marks)**

**Q4.**

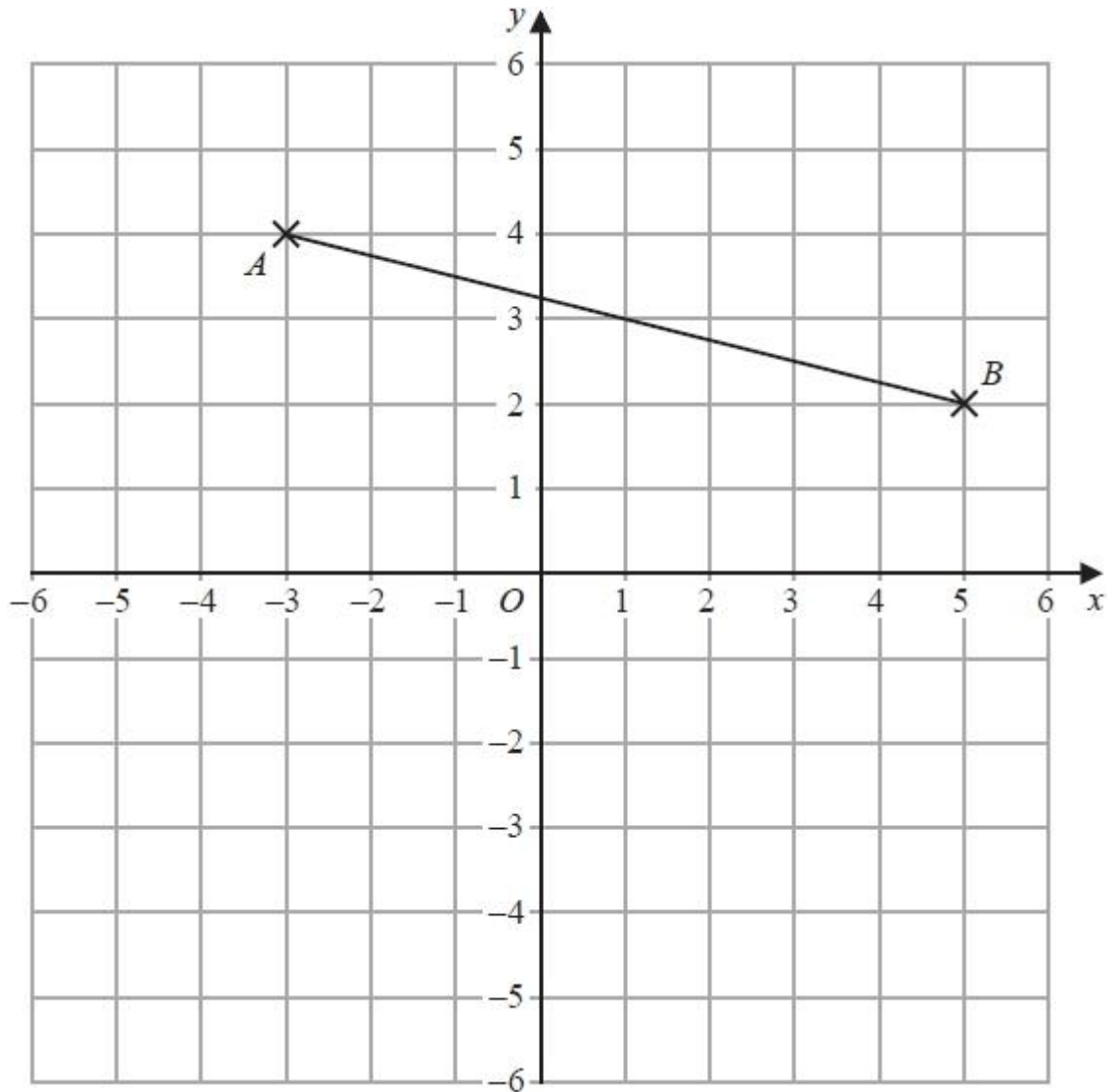
A cube has a total surface area of  $150 \text{ cm}^2$

Work out the volume of the cube.

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

**(Total for question = 4 marks)**

**Q5.**



(a) Write down the coordinates of point B.

( ..... , ..... )

(1)

(b) Plot the point with coordinates (4, -2)

Label this point C.

(1)

(c) Write down the coordinates of the midpoint of AB.

( ..... , ..... )

(1)

(d) Draw the line with equation  $y = -4$

(1)

**(Total for question = 4 marks)**

**Q6.**

Machine A and machine B both make car parts.

Machine A makes 6 parts every 10 minutes.

Machine B makes 13 parts every 15 minutes.

On Monday

machine A makes parts for 12 hours

machine B makes parts for 10 hours

Work out the total number of parts made by the two machines on Monday.

.....

**(Total for question = 4 marks)**

**Q7.**

Jessica runs for 15 minutes at an average speed of 6 miles per hour.

She then runs for 40 minutes at an average speed of 9 miles per hour.

It takes Amy 45 minutes to run the same total distance that Jessica runs.

Work out Amy's average speed.

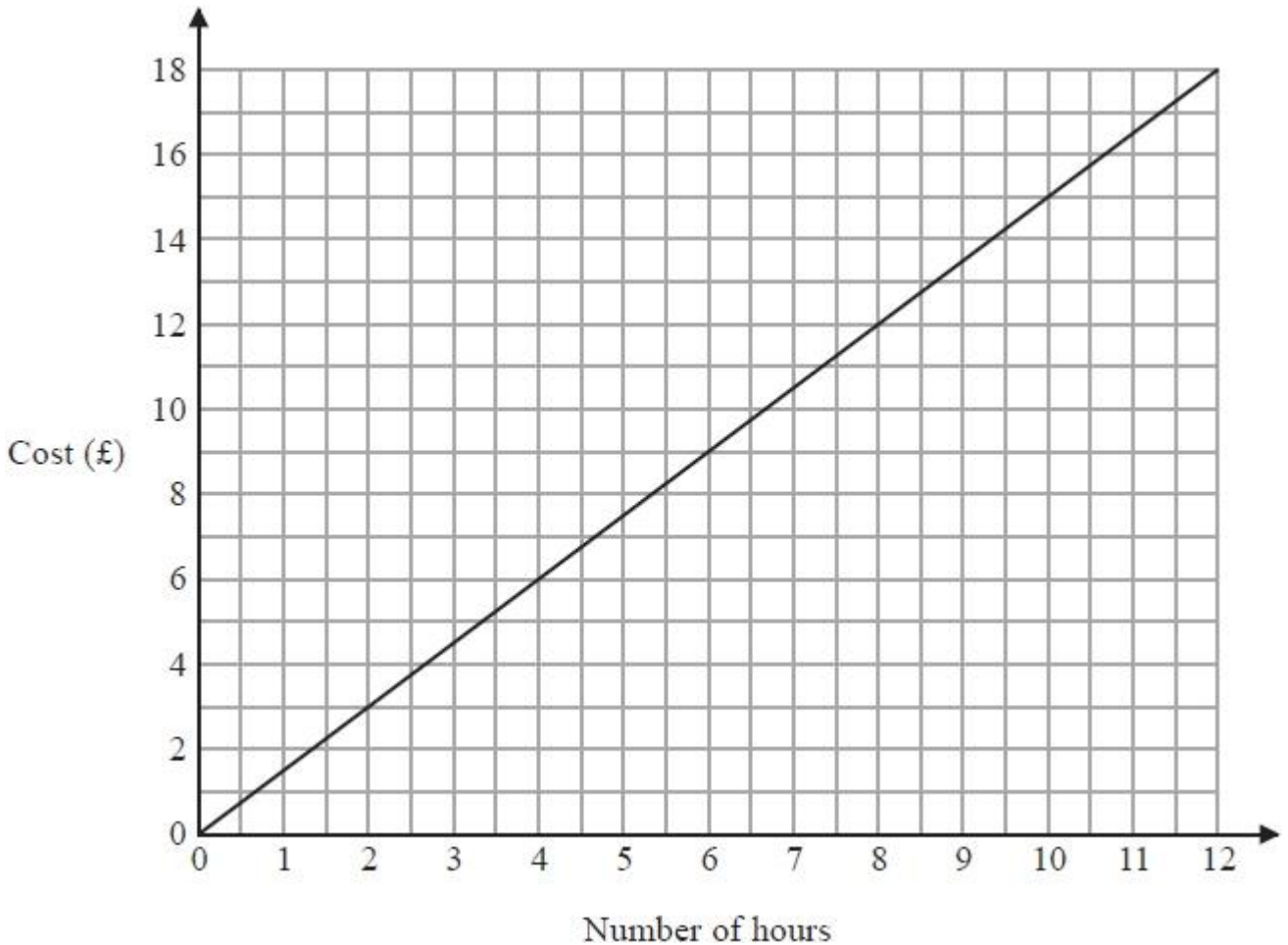
Give your answer in miles per hour.

..... miles per hour

**(Total for question = 4 marks)**

**Q8.**

This graph can be used to find the cost of parking a car in a car park for up to 12 hours.



(a) Use the graph to find the cost of parking a car for 4 hours.

£ .....  
(1)

Justin drives into the car park at 08 00 in the morning.  
When he drives out of the car park he has to pay £9

(b) At what time does Justin drive out of the car park?

.....  
(3)

**(Total for question = 4 marks)**

**Q9.**

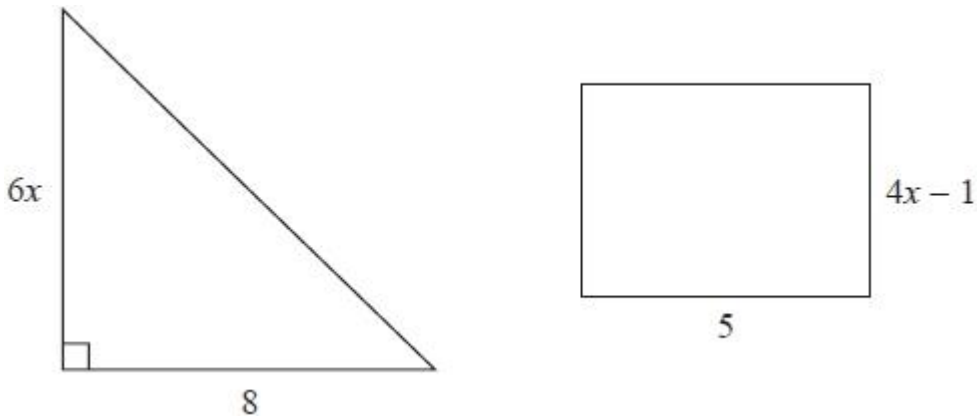
Change 30 metres per second to kilometres per hour.

..... kilometres per hour

**(Total for question = 2 marks)**

**Q10.**

Here is a triangle and a rectangle.



All measurements are in centimetres.

The area of the triangle is  $10 \text{ cm}^2$  greater than the area of the rectangle.

Work out the value of  $x$ .

$x = \dots\dots\dots$

**(Total for question = 4 marks)**



**Q11.**

Gabriel thinks of a number.

He multiplies his number by 5 and then adds 7

His answer is 72

What number did Gabriel think of?

.....

**(Total for question = 3 marks)**

**Q12.**

In Norway last year, the lowest temperature was  $-15^{\circ}\text{C}$ .

In Norway last year, the highest temperature was  $42^{\circ}\text{C}$  greater than the lowest temperature.

Work out the highest temperature in Norway last year.

.....  $^{\circ}\text{C}$

**(Total for question = 2 marks)**

**Q13.**

The box below contains three mathematical symbols.



From the box, choose a symbol to make each of the following statements correct.

(i)  $\frac{5}{8}$  .....  $\frac{2}{8}$

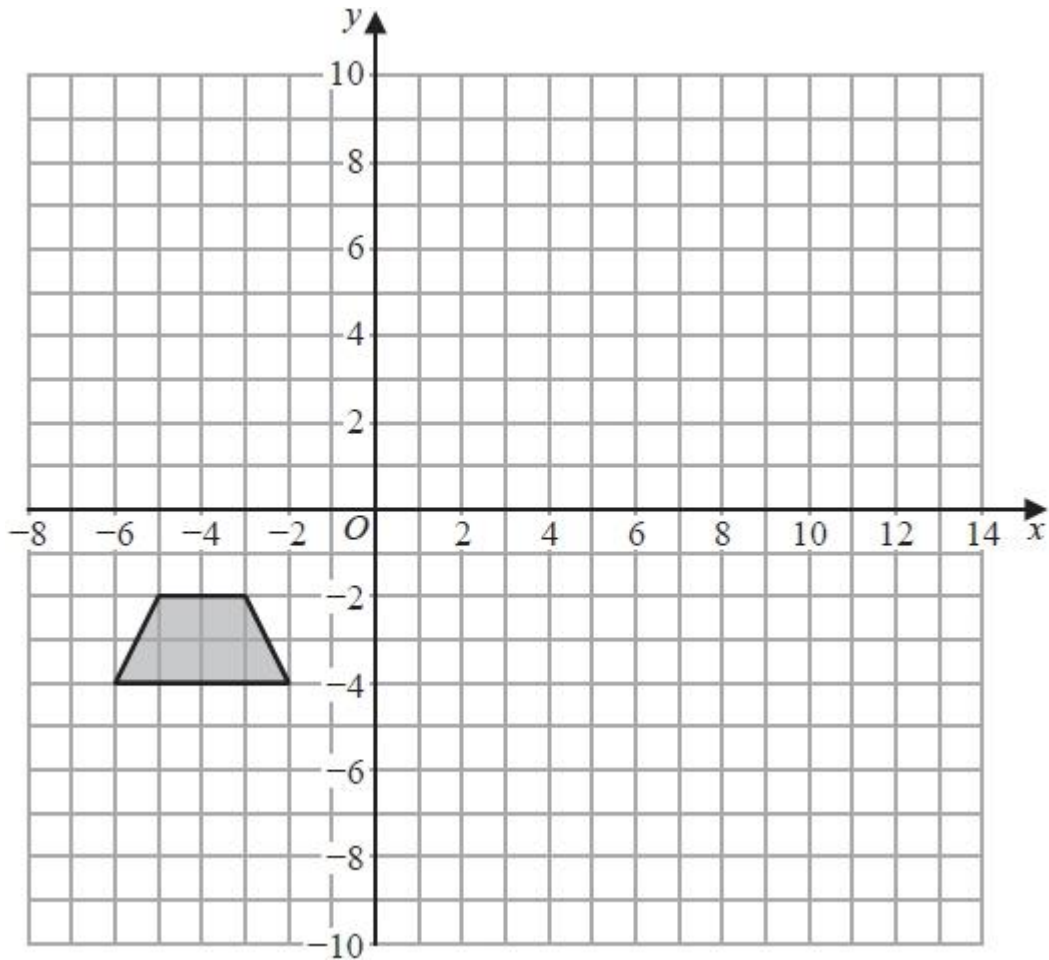
(1)

(ii)  $-2 \times -3$  .....  $-3 + 9$

(1)

**(Total for question = 2 marks)**

**Q14.**



Enlarge the shaded shape by scale factor  $-2$  with centre of enlargement  $(0, 0)$

**(Total for question = 2 marks)**

**Q15.**

(a) Expand  $5(2m - 3)$

.....  
(1)

(b) Factorise  $3n + 12$

.....  
(1)

**(Total for question = 2 marks)**

**Q16.**

There are four types of counter in a bag.

The table shows the number of each type of counter in the bag.

<b>Type of counter</b>	red circle	green circle	red square	green square
<b>Number of counters</b>	16	26	11	7

There are more green counters than red counters.  
How many more?

.....

**(Total for question = 2 marks)**

**Q17.**

The table shows the costs of sending a parcel by the Express service and by the Rapid service.

<b>Type of service</b>	<b>Cost</b>
Express	£15.25
Rapid	£35.38

Brendan has to send 12 parcels.  
It will be cheaper to send the parcels by the Express service than by the Rapid service.

(a) How much cheaper?

£ .....

**(3)**

Luke wants to send 21 parcels by the Express service.

He does the calculation  $20 \times \text{£}15 = \text{£}300$  to estimate the cost.

(b) Explain why Luke's calculation shows the actual cost will be more than £300

.....  
.....  
.....

(1)

**(Total for question = 4 marks)**

**Q18.**

(a) Work out  $\frac{2}{3} - \frac{1}{5}$

.....  
(2)

(b) Work out  $\frac{2}{3} \times \frac{3}{4}$

Give your answer as a fraction in its simplest form.

.....  
(2)

**(Total for question = 4 marks)**

**Q19.**

A shop sells packs of black pens, packs of red pens and packs of green pens.

There are

2 pens in each pack of black pens

5 pens in each pack of red pens

6 pens in each pack of green pens

On Monday,

$$\begin{array}{l} \text{number of packs} \\ \text{of black pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of red pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of green pens sold} \end{array} = 7:3:4$$

A total of 212 pens were sold.

Work out the number of green pens sold.

.....

**(Total for question = 4 marks)**

**Q20.**

There are 400 counters in a box.

The counters are red or yellow or green.

$\frac{3}{8}$  of the counters are red.

82 of the counters are yellow.

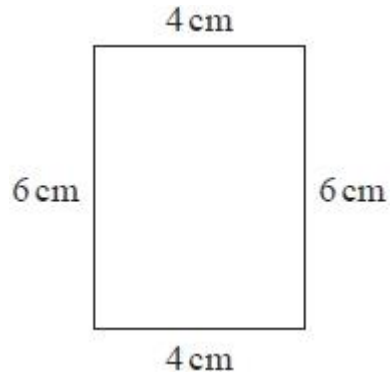
What percentage of the counters are green?

..... %

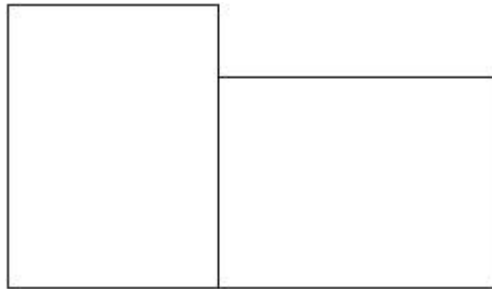
**(Total for question = 4 marks)**

**Q21.**

Here is a rectangle.



The 6-sided shape below is made from two of these rectangles.



Work out the perimeter of this 6-sided shape.

..... cm

**(Total for question = 3 marks)**