



# PREDICTED PAPER



Video Solutions

Centre Number

Candidate Number

Surname \_\_\_\_\_

Forename(s) \_\_\_\_\_

Signature \_\_\_\_\_

## GCSE MATHEMATICS

# F

Foundation Tier Paper 2 Calculator Allowed

Thursday 3 November 2022

Morning

Time allowed: 1 hour 30 minutes

### Student Self Reflection

Topics/Question I need to **revise**

Topics/Questions I need to **learn**

For teacher use	
Pages	Mark
2-3	
4-5	
6-7	
8-9	
10-11	
12-13	
14-15	
16-17	
18-19	
20-21	
TOTAL	



Answer **all** questions in the spaces provided.

Do not write  
outside the  
box

1 Circle the multiple of 10 [1 mark]

0.1

1

5

20

2 Circle the value of the digit 3 in 4.235 [1 mark]

$\frac{1}{3}$

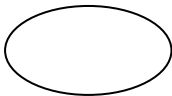
$\frac{3}{10}$

$\frac{1}{30}$

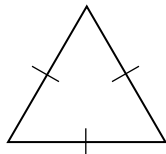
$\frac{3}{100}$

3 Which of the shapes has only **one** line of symmetry?  
Circle the correct letter. [1 mark]

A



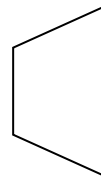
B



C



D





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4 Circle the value of  $5^4$  [1 mark]

20                      54                      125                      625

5 (a) Write the following units in order of size.  
Start with the smallest. [1 mark]

metres                      millimetres                      kilometres                      centimetres

Answer \_\_\_\_\_

5 (b) Write a suitable unit for measuring each amount.  
One has been done for you [2 marks]

	Unit
Length of a football pitch	metres
Amount of water in a bath	
Mass of a suitcase full of luggage	

$\frac{\quad}{7}$


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






6 Torie collects toy cars of different colours.

The pictogram shows the number of toy cars that she has that are red and that are green.

Key:  represents 4 toy cars

Red	  
Blue	
Yellow	

6 (a) How many red cars does Torie have?

[1 mark]

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Answer \_\_\_\_\_

Torie has 5 blue toy cars.  
In total Torie has 21 toy cars.

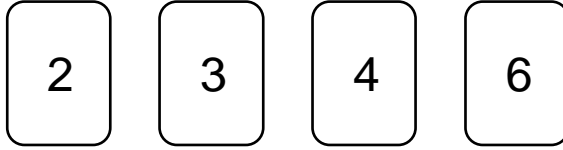
6 (b) Use this information to complete the pictogram.

[2 marks]





7 Here are four numbered cards.



Sophia uses each card once to make two, 2-digit numbers.  
She then **multiplies** the numbers together.

Sophia arranges the numbers in the following way.

$$\begin{array}{|c|} \hline 2 \\ \hline \end{array} \begin{array}{|c|} \hline 3 \\ \hline \end{array} \times \begin{array}{|c|} \hline 4 \\ \hline \end{array} \begin{array}{|c|} \hline 6 \\ \hline \end{array} = 1058$$

Sophia says: "1058 is the smallest possible answer that I can get from multiplying two 2-digit numbers using these cards"

7 (a) By finding a lower possible answer, show that Sophia is wrong. [1 mark]

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7 (b) Write down the lowest possible answer that Sophia could have made. [1 mark]

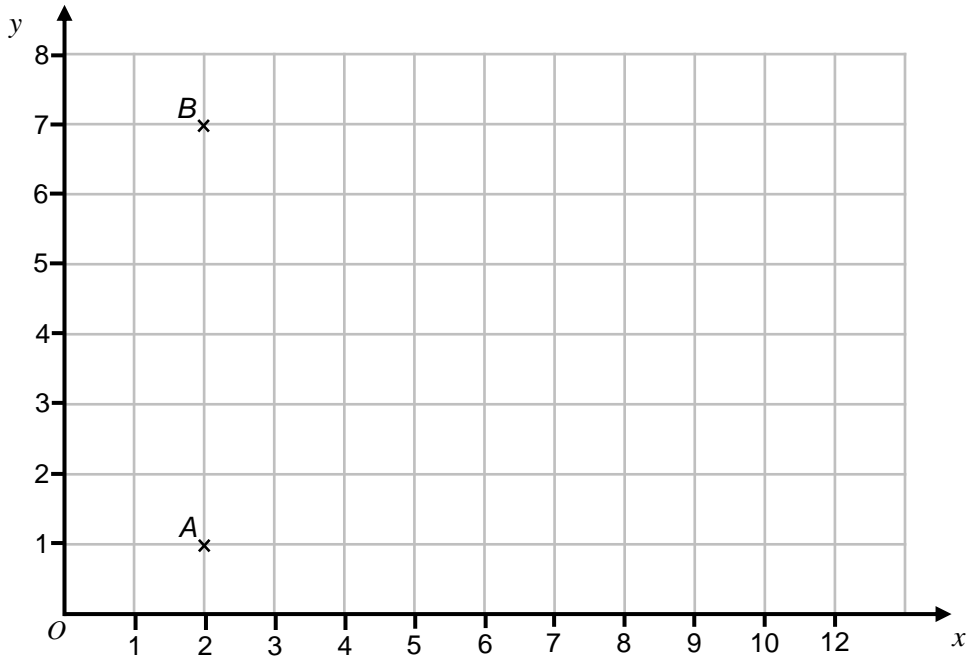
Answer \_\_\_\_\_





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outside the  
box

8



8 (a) Write down the coordinates of point A. [1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

8 (b) Point C has coordinates (7, 4) [1 mark]

Mark point C onto the grid above.

8 (c) What type of triangle is made by connecting points A, B and C? [1 mark]

Circle your answer.

Isosceles

Scalene

Equilateral

Right angled

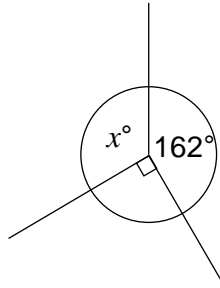




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9 Work out the size of angle  $x$ .

[3 marks]




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$x =$  \_\_\_\_\_ °

10 The radius, chord, diameter and circumference are all parts of a circle,  $C$ .

Tick the correct box for each statement below.

[3 marks]

	Always true	Sometimes true	Never true
The radius of $C$ is longer than the diameter of $C$ .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The circumference of $C$ is longer than the diameter of $C$ .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A chord of $C$ is longer than the radius of $C$ .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Turn over ►





11 Toby adds some fractions. His working out is shown below.

$$\begin{aligned} & \frac{1}{5} + \frac{3}{8} \\ &= \frac{8}{40} + \frac{5}{40} \\ &= \frac{13}{40} \end{aligned}$$

Explain the mistake that Toby has made.

[1 mark]

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12  $m = -9$

[1 mark]

Circle the value of  $m^2$

-3

3

-81

81







**13** An energy company charges customers according to the following table. Customers pay a fixed daily charge plus a cost for each unit of energy used.

	Daily Charge	Cost per Unit
Electricity	14p	34p
Gas	8p	10.3p

The table below shows Gill's energy use for three months.

	Month 1	Month 2	Month 3
Electricity (units used)	350	360	320
Gas (units used)	612	718	942

Each of the months has 31 days.

Work out the total cost of Gill's energy bill for these three months.

**[5 marks]**

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£ \_\_\_\_\_

$\frac{\quad}{7}$

Turn over ►





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- 14 Fiona's hourly pay in 2022 is £9.50  
In 2023 she will receive a 4% pay increase.

Work out Fiona's hourly pay in 2023.

[3 marks]

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£ \_\_\_\_\_

- 15 A bag contains counters of four different colours.  
A counter is randomly selected from the bag.  
The probability of selecting a counter of a given colour is shown below.

Colour	Red	Blue	Yellow	Green
Probability	0.6	0.1		

The probability of selecting a yellow counters is the same as the probability of selecting a green counter.

Work out the probability of selecting a yellow counter.

[3 marks]

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Answer \_\_\_\_\_





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16

A company uses 2 machines to produce cans.  
The information below shows how fast each machine produces cans.

Machine A
825 cans in 22 minutes

Machine B
1719 cans in 45 minutes

Which machine produces cans at the faster rate?  
You **must** show your working.

[3 marks]

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Answer \_\_\_\_\_

17

Alvin, Simon and Theodore all have Instagram.  
Alvin has 5 times as many followers as Simon.  
Theodore has one third of the followers of Simon.

Write as a ratio in simplest form, the number of followers Alvin has,  
to the number Simon has, to the number Theodore has.

[2 marks]

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Answer \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_

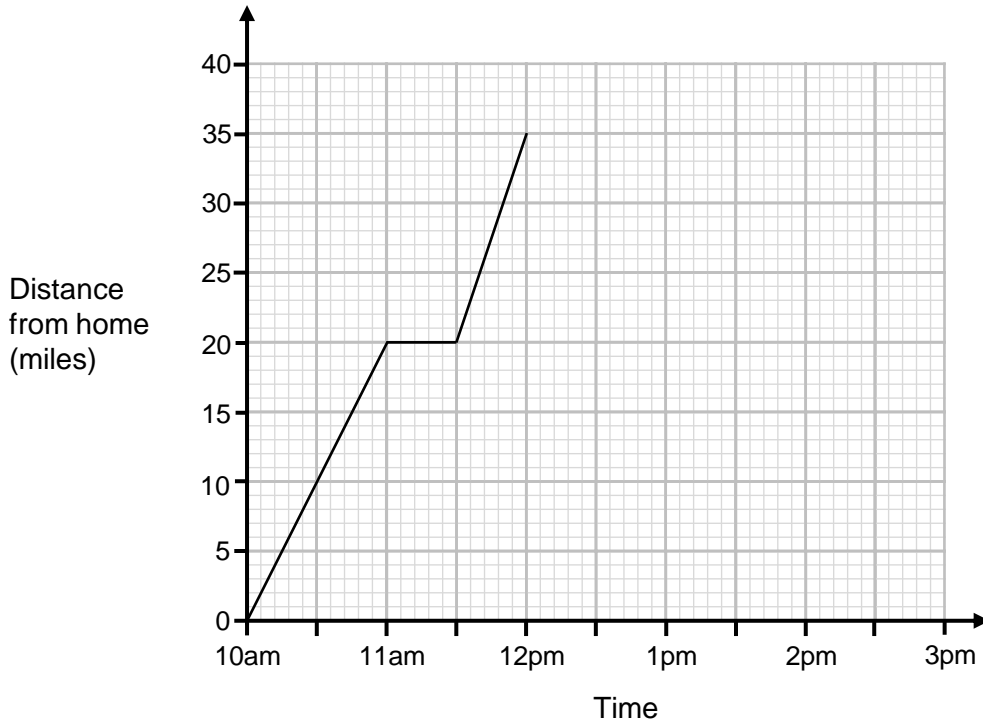
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- 18** Mariana drives from her home to her friend's house. Her friend lives 35 miles from her home. Mariana stops on the way, to visit a park.



- 18 (a)** How many minutes does Mariana spend at the park? **[1 mark]**

Answer \_\_\_\_\_ minutes

- 18 (b)** Mariana spends 90 minutes at her friend's house. She then returns home travelling at a constant speed. She arrives home at 2:30pm. **[2 marks]**

Complete the distance-time graph





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outside the  
box

19 (a)  $x$  and  $y$  are whole numbers.

[2 marks]

$$12 \leq x < 20$$

$$5 < y < 9$$

Work out the lowest possible value of  $x - y$

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Answer \_\_\_\_\_

19 (b)  $2x = 3a + b$

Write down an expression in terms of  $a$  and  $b$ , equal to  $6x$

[1 mark]

Answer \_\_\_\_\_

19 (c)  $2x = 3a + b$

Write down an expression in terms of  $a$  and  $b$ , equal to  $2x + a$

[1 mark]

Answer \_\_\_\_\_



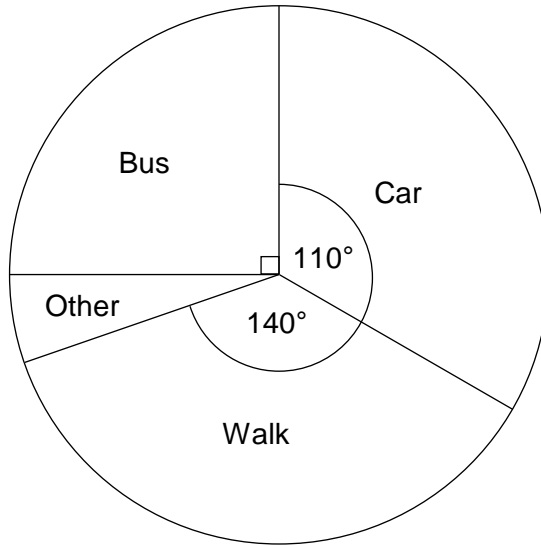
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450 students were asked how they travelled to school.  
The pie chart shows the results.



Work out how many students selected **other**.

[3 marks]

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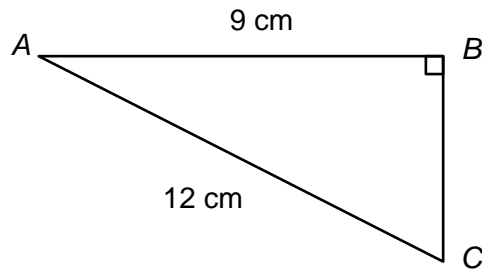
Answer \_\_\_\_\_





Do not write  
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21 Here is triangle  $ABC$ .



Work out the length  $BC$ .

[3 marks]

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Answer \_\_\_\_\_ cm

$\frac{\quad}{6}$

Turn over ►



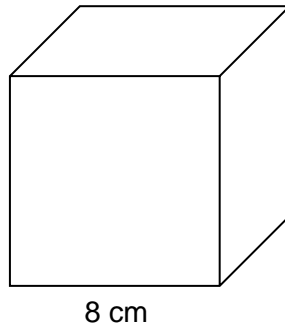


22 Use your calculator to work out the value of  $\frac{3 \cdot 2^4}{\sqrt{54} - 3}$   
Write down your full calculator display.

[2 marks]

Answer \_\_\_\_\_

23 Here is a cube



Work out the surface area of the cube.

[2 marks]

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Answer \_\_\_\_\_ cm<sup>2</sup>



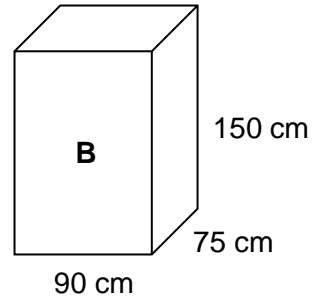
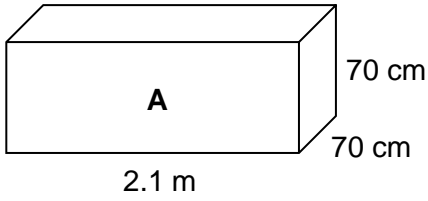




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24

Here are two cuboids.



Which cuboid has the greater volume?  
You **must** show your working.

[3 marks]

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Answer \_\_\_\_\_

$\frac{7}{7}$

Turn over ►





Do not write  
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25

Pawel thinks of a number.

The highest common factor of his number and 20 is equal to 5.

His number is greater than 30.

Work out **two** possible numbers that Pawel could be thinking of.

**[3 marks]**

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Answer \_\_\_\_\_ and \_\_\_\_\_

26

$c$  is an integer.

The cube root of  $c$  is between 8 and 9.

The cube root of  $2c$  is between 11 and 12.

Work out a possible value for  $c$ .

**[3 marks]**

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Answer \_\_\_\_\_

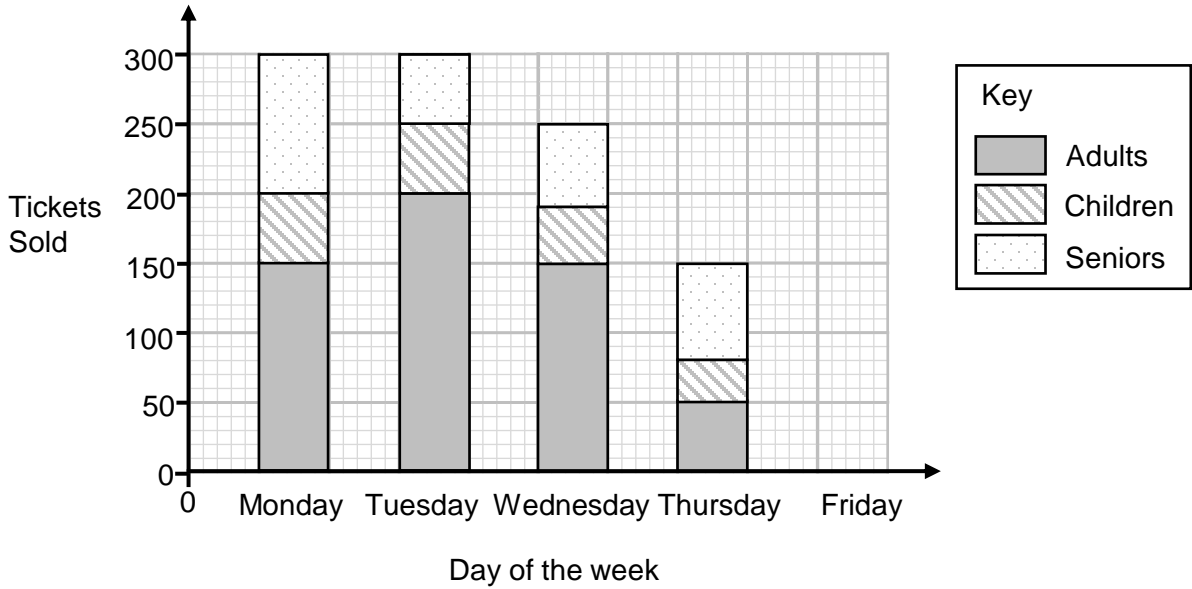




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27 A theatre sells three types of tickets, adults, children and seniors.

The composite bar chart shows information about the different tickets sold during one week.



27 1250 tickets were sold in total during this week. The theatre only sells tickets to adults and seniors on a Friday. 44% of the Friday tickets were sold to adults.

Complete the composite bar chart for Friday.

[4 marks]

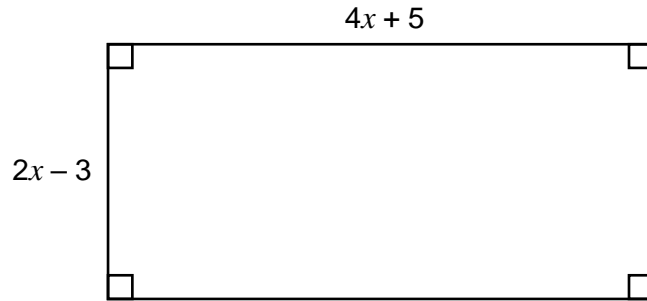
10

Turn over ►





28 Here is a rectangle with a perimeter of 52 cm



28 (a) Show that  $12x + 4 = 52$  [2 marks]

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28 (b) Find the value of  $x$  [2 marks]

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$x =$  \_\_\_\_\_





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29  $m = u + 2p$

29 (a) Find the value of  $m$  when

$u = 3.2 \times 10^4$  and  $p = 2.7 \times 10^3$

[2 marks]

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Answer \_\_\_\_\_

29 (b) Rearrange  $m = u + 2p$  to make  $p$  the subject.

[2 marks]

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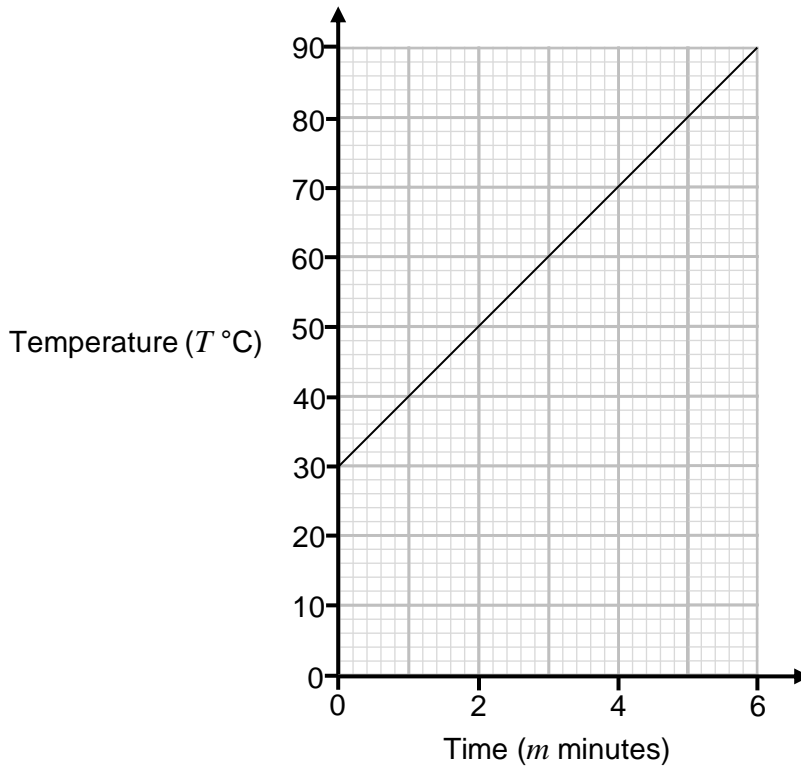
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Answer \_\_\_\_\_





- 30** The graph shows the temperature ( $T$  °C) of a liquid that is being heated at time  $m$  minutes.



- 30 (a)** The graph intersects the temperature axis at  $T = 30$   
Explain what this intercept represents. [1 mark]

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The graph above has equation  $T = 10m + 30$   
A metal is also heated and has a graph with equation  $T = 20m + 20$

- 30 (b)** Does the liquid or the metal heat at a faster rate?  
Explain your answer fully. [2 marks]

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END OF QUESTIONS

