

Write your name here

Surname

Other Names

Mathematics

June 2025 Practice Paper 2 (Calculator) Foundation Tier

Time: 1 hour 30 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- **Calculators may be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working.**



Information

- The total mark for this paper is 80
- 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Foundation Tier Formulae Sheet

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2}(a + b) h$$

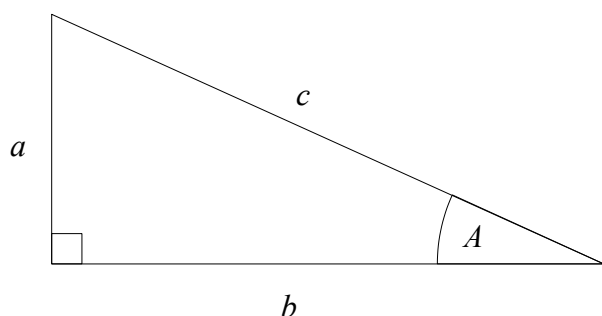
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

END OF EXAM AID

1 Write 7842 to the nearest 100

.....
(Total for Question 1 is 1 mark)

2 Write down a 5 digit number that has 7 as its thousands digit.
You can only use the digit 7 once.

.....
(Total for Question 2 is 1 mark)

3 Write down a number that is less than -5

.....
(Total for Question 3 is 1 mark)

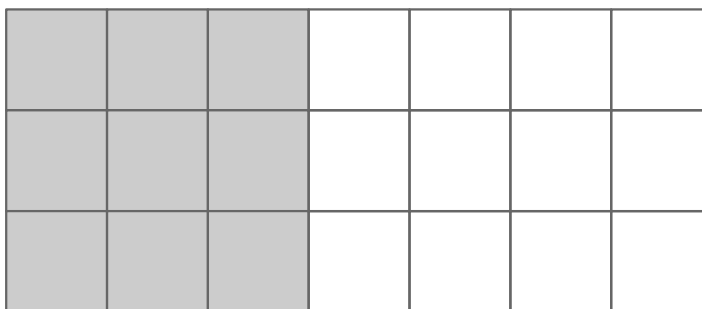
4 Here is a list of numbers

6 12 15 21 27 36 64 80

From the list, write down all the cube numbers.

.....
(Total for Question 4 is 1 mark)

5 Here is a grid of squares.

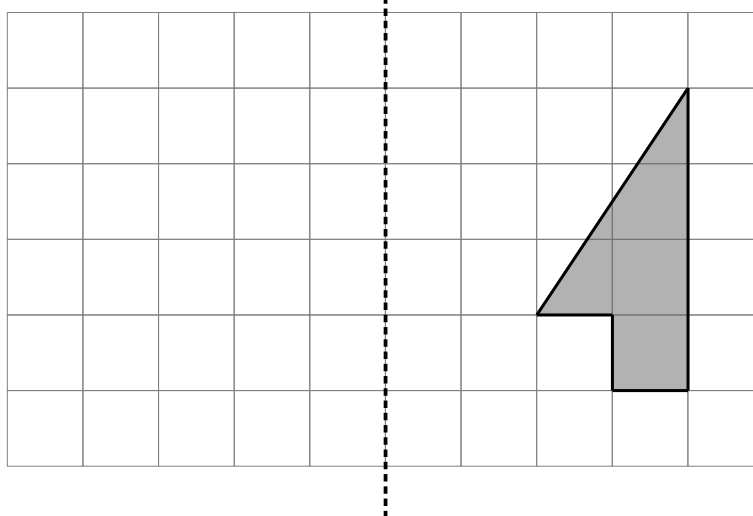


What fraction of the grid is shaded.

.....
(Total for Question 5 is 1 mark)

6

mirror line



Reflect the shaded shape in the mirror line.

(Total for Question 6 is 2 marks)

- 7 There are some counters in a bag.
The table shows the number of counters of each colour.

Colour	Red	Blue	Yellow	Green
Number of Counters	7	2	5	3

A counter is taken at random from the bag.

- (a) Write down the probability that the counter is green.

.....

- (b) Write down the probability that the counter is not blue.

(1)

.....

(2)

(Total for Question 7 is 3 marks)

- 8 (a) Write the ratio $24 : 72$ in its simplest form.

.....

(1)

- (b) In February, it rained on $\frac{3}{7}$ of days

Write the ratio of the days it rained to the number of days it did not rain.

.....

(1)

(Total for Question 8 is 2 marks)

9 Nina orders some items from a shop.
Here is her bill.

Item	Quantity	Cost of each item	Total
Pack of paper	4	£4.99	£19.96
Calculator	25	£5.25	£
Maths set		£3.52	£112.64
Delivery Charge			£4.95
Total cost			£

Complete all the missing information in the bill.

(Total for Question 9 is 3 marks)

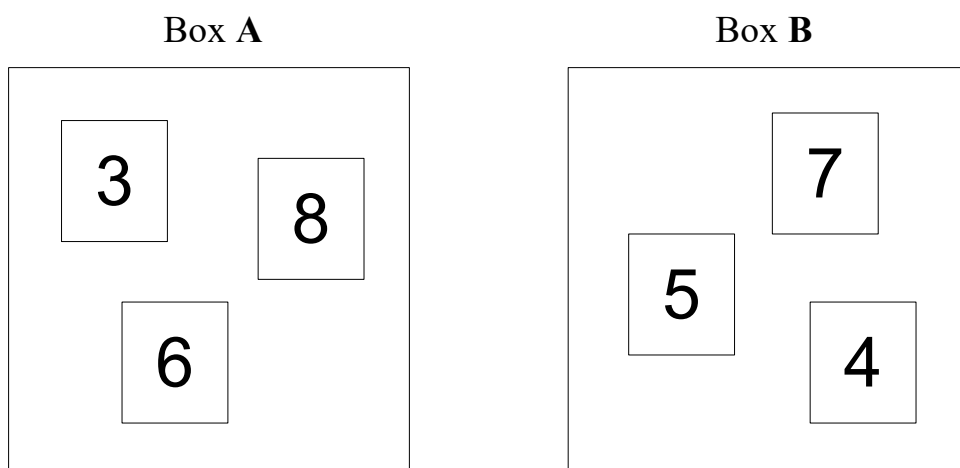
10 $y = 6x - 5$

Work out the value of y when $x = 4$

$y =$

(Total for Question 10 is 2 marks)

- 11** There are three cards in box A and three cards in box B.
There is a number on each card.



Harry takes a card from box A and a card from box B.

- (a) Write down all the possible combinations of cards Harry can take.

.....

.....

.....

Harry adds the numbers on the two cards to get a total score.

(2)

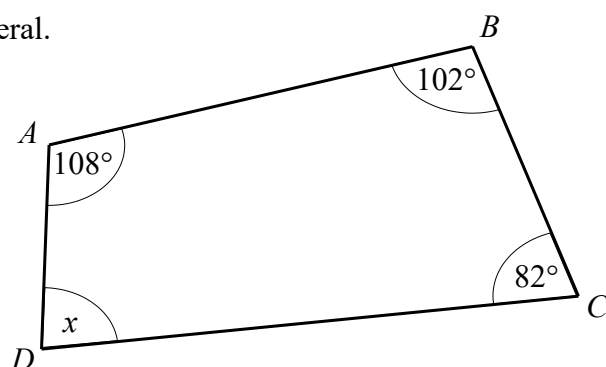
- (b) Work out the probability that the total score is greater than 12.

.....

(1)

(Total for Question 11 is 3 marks)

- 12 $ABCD$ is a quadrilateral.

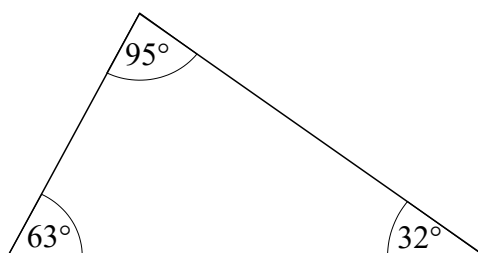


- (a) (i) Work out the size of the angle marked x .

- (ii) Give a reason for your answer.

(1)

The diagram below shows a triangle.



The diagram is wrong.

- (b) Explain why.

(1)

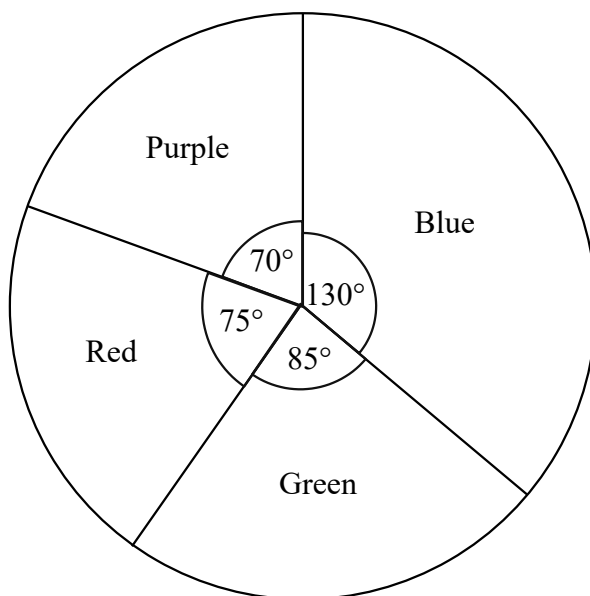
(Total for Question 12 is 3 marks)

- 13** Write 40 grams as a fraction of 500 grams.
Give your answer in its simplest form.

.....

(Total for Question 13 is 2 marks)

- 14** Bradley asked a group of people to name their favourite colour.
He draws a pie chart to show his results.



17 of the people said that green was their favourite colour.

Work out how many people said that blue was their favourite colour.

.....

(Total for Question 14 is 2 marks)

15 Here are the first five terms of a Fibonacci sequence

1 2 3 5 8

Write down the next two terms in the sequence.

..... ,

(Total for Question 15 is 2 marks)

16 There are 11 grams of fibre in 100 g of oats.
There are 2.4 grams of fibre 100 g of banana.

Rachel has 40 g of oats and 60 g of banana for breakfast.

Work out the total amount of fibre in this breakfast

.....g

(Total for Question 16 is 4 marks)

17 (a) Expand $x(x + 4)$

(b) Factorise $6y - 4$

.....
(1)

(c) Solve $4(x - 3) = 14$

.....
(1)

$x =$

(2)

(Total for Question 17 is 4 marks)

18 There are 200 people at the cinema.

$\frac{3}{5}$ of the people are children.

The rest of the people are adults.

35% of the children order popcorn.

45% of the adults order popcorn.

How many of the people do **not** order popcorn?

.....
(Total for Question 18 is 5 marks)

19 A number, m , is rounded to 1 decimal place.
The result is 9.4

Complete the error interval for m .

..... $\leq m <$

(Total for Question 19 is 2 marks)

20 The table gives information about the times taken, in seconds, by 20 students to run a race.

Time (t seconds)	Frequency
$20 < t \leq 25$	2
$25 < t \leq 30$	10
$30 < t \leq 35$	5
$35 < t \leq 45$	3

Work out an estimate for the mean time.

..... seconds

(Total for Question 20 is 3 marks)

21 Use your calculator to work out $\sqrt{\frac{11.3 + 2.51}{6.3 - 1.3^2}}$

(a) Write down all the figures on your calculator display.

.....
(2)

(b) Write your answer to part (a) correct to 4 significant figures.

.....
(1)

(Total for Question 21 is 3 marks)

22 A company has to make a large number of boxes.

The company has 6 machines.

All the machines work at the same rate.

When all the machines are working, they can make all the boxes in 9 days.

2 of the machines are not working and cannot be used to make the boxes.

Work out the total number of days taken to make all the boxes.

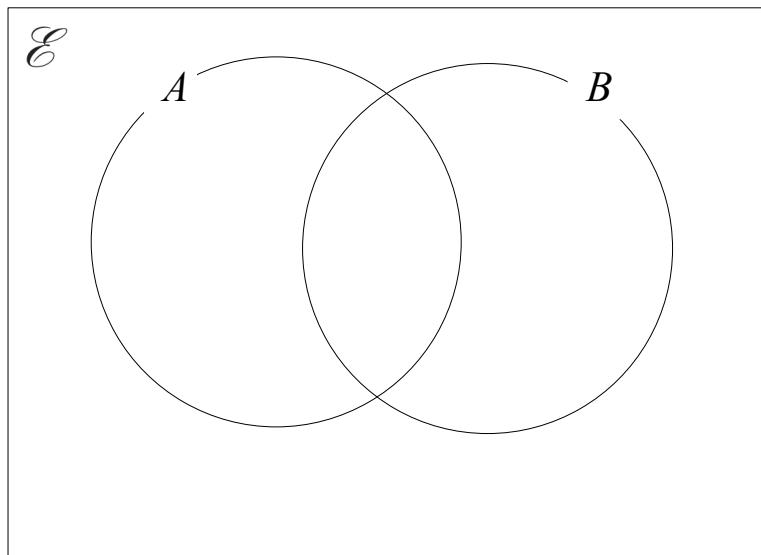
.....
(Total for Question 22 is 3 marks)

23 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{\text{odd numbers}\}$

$B = \{\text{factors of 12}\}$

(a) Complete the Venn diagram to represent this information.



(3)

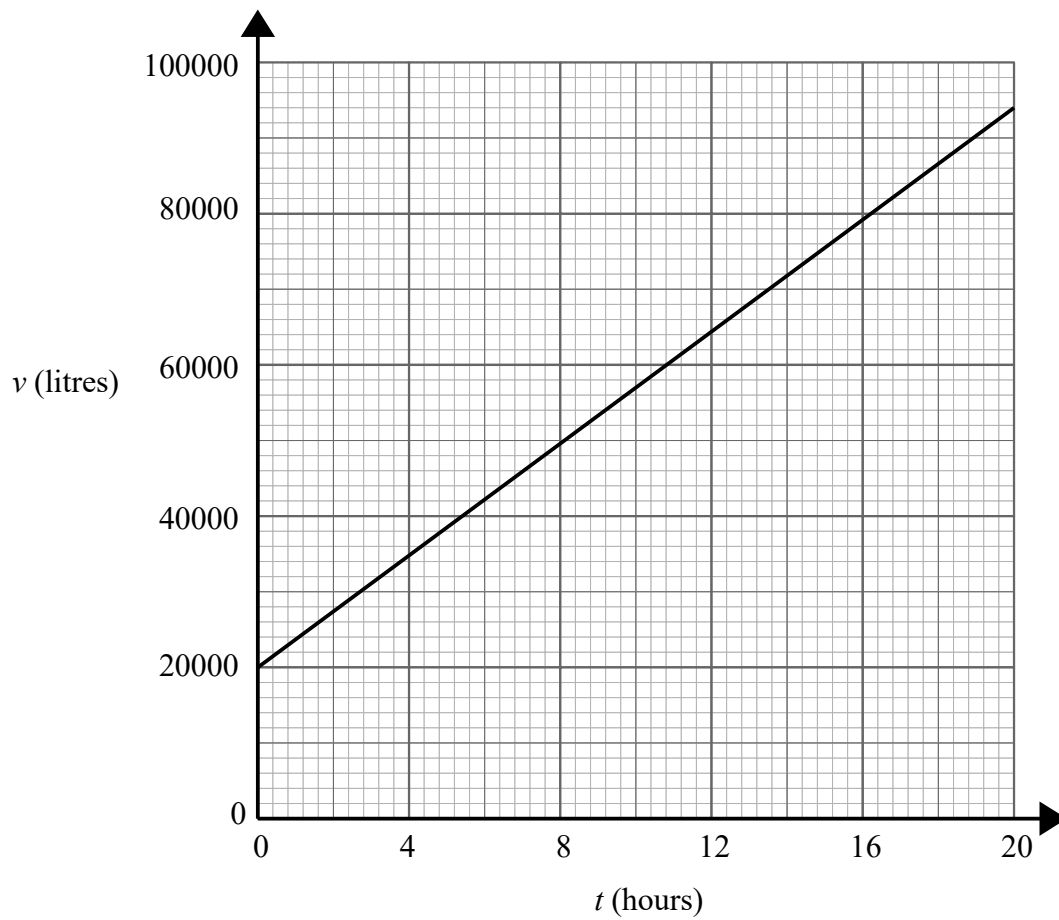
A number is chosen at random from the universal set, $\mathcal{E}$

(b) What is the probability that the number is in the set $A \cup B$?

.....
(2)

(Total for Question 23 is 5 marks)

- 24 Bernie is filling up a swimming pool.
The graph shows the volume, v litres, of water in the swimming pool at time, t hours.



Work out the rate that the water is flowing into the pool.

Give your answer in litres per hour.

..... litres/hr

(Total for Question 24 is 2 marks)

25 Robyn buys a total of 240 pens and pencils, where

$$\text{number of pens} : \text{number of pencils} = 3 : 5$$

Robyn pays 9p for each pen.
She sells each pen for 11p.

Robyn pays 6p for each pencil.
She sells each pencil for 10p.

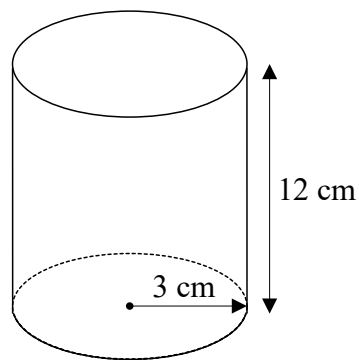
Robyn sells all of the pens and pencils.

Work out Robyn's percentage profit.
Give your answer correct to 1 decimal place.
You must show all your working.

..... %

(Total for Question 25 is 5 marks)

- 26** The diagram shows a solid cylinder with base radius 3 cm and height 12 cm.



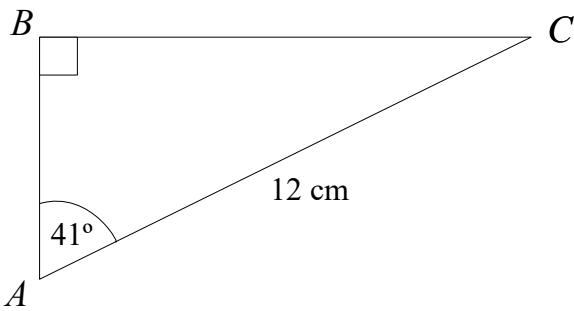
The cylinder is made from steel.
It has a mass of 2650 g.

Work out the density of the steel.
Give your answer correct to 3 significant figures.

..... g/cm³

(Total for Question 26 is 3 marks)

27 *ABC* is a right angled triangle.



Calculate the length of AB .
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 27 is 2 marks)

28 (a) Simplify $(t^3)^4$

(b) Simplify $12m^2n^6 \div 3mn^4$

.....
(1)

.....
(2)

(Total for Question 28 is 3 marks)

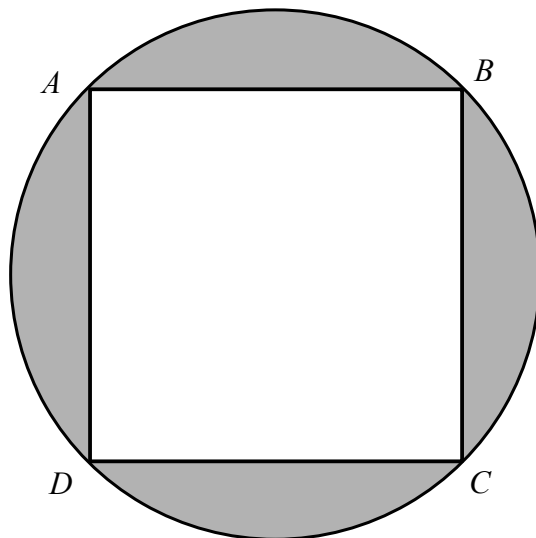
29 $x - 2$, $x + 4$ and $3x + 5$ are three consecutive terms of an arithmetic sequence.

Find the value of x

$x =$

(Total for Question 29 is 3 marks)

- 30 A, B, C and D are points on a circle such that $ABCD$ is a square.



The square $ABCD$ has sides of length 4 cm.

Calculate the area of the circle.

Give your answer correct to 1 decimal place.

You must show all your working.

.....
cm²

(Total for Question 30 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS