Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

C300U10-1

S25-C300U10-1

THURSDAY, 15 MAY 2025 – MORNING

MATHEMATICS – Component 1
Non-Calculator Mathematics
FOUNDATION TIER

2 hours 15 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**6**	
2.	**3**	
3.	**5**	
4.	**4**	
5.	**3**	
6.	**4**	
7.	**4**	
8.	**6**	
9.	**5**	
10.	**3**	
11.	**5**	
12.	**3**	
13.	**5**	
14.	**6**	
15.	**5**	
16.	**4**	
17.	**5**	
18.	**4**	
19.	**5**	
20.	**4**	
21.	**3**	
22.	**6**	
23.	**5**	
24.	**5**	
25.	**5**	
26.	**2**	
27.	**5**	
Total	**120**	

ADDITIONAL MATERIALS

An additional formulae sheet.

The use of a calculator is not permitted in this examination.

A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the need for good English and orderly, clear presentation in your answers.

JUN25C300U10101

C300U101
01

Formula list

Area and volume formulae

Where r is the radius of the sphere or cone, l is the slant height of a cone and h is the perpendicular height of a cone:

Curved surface area of a cone = πrl

Surface area of a sphere = $4\pi r^2$

Volume of a sphere = $\frac{4}{3}\pi r^3$

Volume of a cone = $\frac{1}{3}\pi r^2 h$

Kinematics formulae

Where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time taken:

$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$

Examiner only

Answer **all** questions.

1. (a) Work out $6 + 3 \times 4$. [1]

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(b) Write down the value of the 5 in the number 23 542. [1]

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(c) Write down all the factors of 20. [2]

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(d) **Estimate** the value of $6{\cdot}8 \times 103{\cdot}12$. [1]

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(e) David is rounding **whole numbers** correct to the **nearest 10**.
He says,

"Apart from 750, there are eight whole numbers that round to 750."

Is David correct?

Yes ☐ No ☐

Explain your reasoning. [1]

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03

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2. Michelle has 195 counters.
Alex has 241 counters.

Alex gives some counters to Michelle so that they both have the same number of counters.

How many counters does Alex give to Michelle? [3]

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Alex gives Michelle ..... counters.

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3. (a) Kali has a bag containing 20 marbles.
She chooses one marble from the bag at random.

(i) It is **impossible** for Kali to choose a blue marble.
How many blue marbles are there in Kali's bag? [1]

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(ii) It is **likely** that Kali chooses a red marble.
What is the greatest number of red marbles there could be in Kali's bag? [1]

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(b) William has a box containing 40 counters.
20 of the counters are purple, 12 of the counters are black, and the remaining counters are green.

A counter is taken at random from the bag.
William says that there is an even chance of choosing a purple counter.

Kali says that William cannot be correct because there are 3 different colours of counter in the bag.

Who is correct?

William ☐ Kali ☐ Neither ☐

Explain your reasoning. [1]

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Examiner only

(c) Lauren has some pens in a drawer.

A pen is selected at random from the drawer.
The table shows the probability of choosing a blue pen, a black pen or a red pen.

Colour	Blue	Black	Red
Probability	$\frac{7}{20}$	$\frac{1}{4}$	$\frac{3}{20}$

Explain how you know that the drawer must contain pens that are **not** blue, black or red.
You must show all your working. [2]

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4. (a) Write $\frac{7}{10}$ as a percentage. [1]

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(b) Write 9% as a decimal. [1]

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(c) Which of the following fractions is nearer in value to $\frac{13}{20}$?

$\frac{3}{5}$ $\frac{3}{4}$

You must show all your working. [2]

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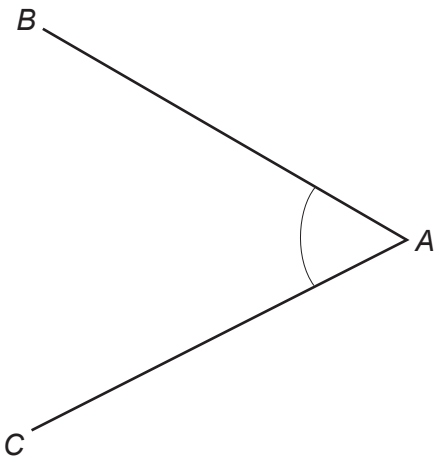
..... is nearer in value to $\frac{13}{20}$

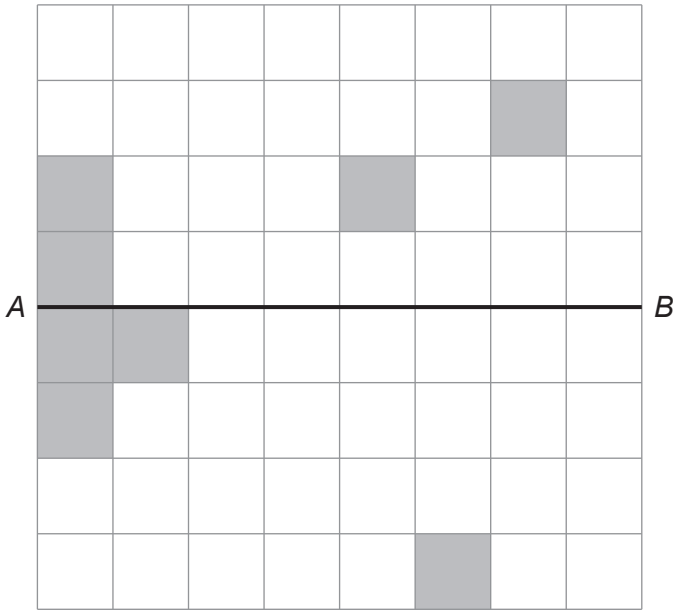
Examiner only

5. (a) Measure and write down the size of angle *BAC*. [1]



Angle *BAC* = ... °

(b) Shade the smallest number of squares to make *AB* a line of symmetry. [2]



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6. Annie is buying a laptop.
She pays:

- 30% of the cost as a deposit
- the remaining amount in 20 equal monthly payments.

The laptop costs £800.

How much is each monthly payment? [4]

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Each monthly payment = £ .....

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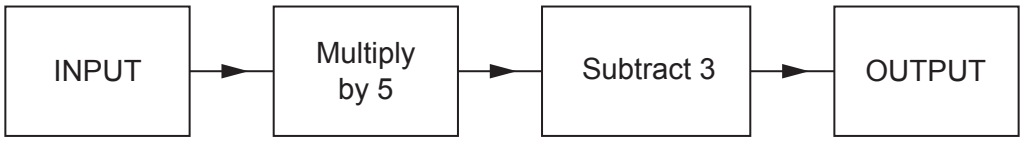
7. (a) The diagram below shows a number machine.



(i) When the INPUT is 70, what is the OUTPUT? [1]

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(ii) When the OUTPUT is 42, what is the INPUT? [1]

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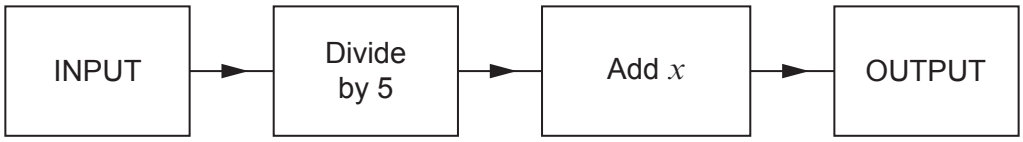
(b) A different number machine is shown below.



When the INPUT is 60, the OUTPUT is 20.
Find the value of x. [2]

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8. (a) Simplify $2a + 6b + a - 2b$. [2]

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(b) Solve $9 + w = 25$. [1]

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(c) Find the value of $2x + 5y$ when $x = -4$ and $y = 10$. [2]

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(d) Jordan has n strawberries. He eats 3 of them.
Write down, in terms of n, the total number of strawberries Jordan has left. [1]

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Examiner only

9. (a) On Saturday, Evie plans to spend:

- $\frac{1}{4}$ of the day watching television,
- $\frac{5}{12}$ of the day sleeping,
- 3 hours in the gym.

Evie has homework which will take four hours to complete.
Show that Evie will have enough time to complete her homework. [4]

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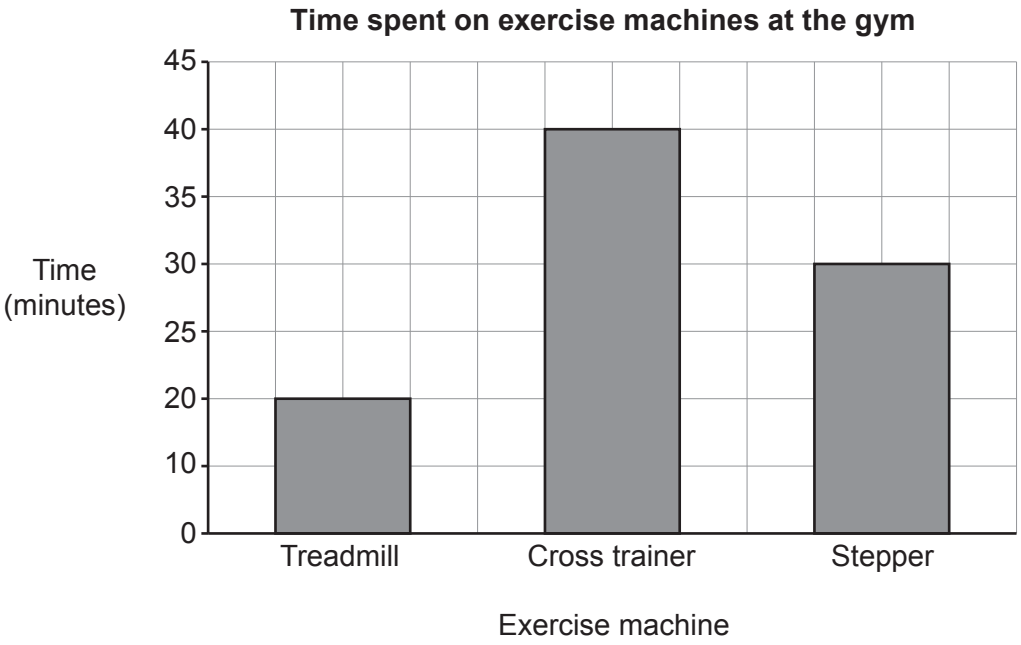
(b) Evie goes to the gym again on Sunday.
She draws a bar chart to show the amount of time she spent on each of three of the exercise machines in the gym.



Write one criticism of her bar chart. [1]

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Examiner only

10. Nasir writes down four whole numbers.

The mode of the four numbers is 8.
The median of the four numbers is 7.
The range of the four numbers is 5.

Write Nasir's four numbers in the boxes below. [3]

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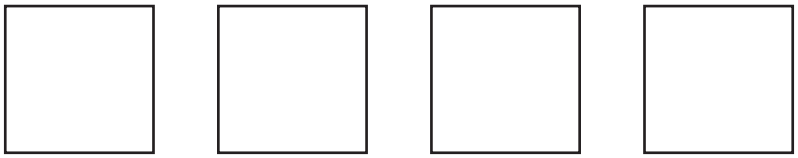

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11. Point *A* and point *B* are shown in the scale drawing below.

Scale: 1 cm represents 8 km

(a) Use your scale drawing to find:
- the actual length of *AB*, in kilometres
- the bearing of point *B* from point *A*. [2]

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Actual length of *AB* = ... km

Bearing of point *B* from point *A* = ... °

(b) Point *C* is 48 km from point *B* on a bearing of 240°.
Complete the scale drawing to show the position of point *C*. [2]

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(c) Point *D* is **due east** of point *B*.
What is the three-figure bearing of point *D* from point *B*? [1]

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Examiner only

12.

Trams from Village Green to Windy Alley

Journey time: 45 minutes

Trams leave Village Green every 12 minutes.
The first tram leaves at 12:00.
The last tram leaves at 22:00.

Liya is catching a tram from Village Green to Windy Alley.
She wants to be at Windy Alley by 13:40.
Liya decides to catch the latest possible tram.

At what time should Liya's tram arrive at Windy Alley?
You must show all your working. [3]

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Liya's tram should arrive at Windy Alley at .....

Examiner only

13. (a) Express 27 as a **fraction** of 12.
Write your answer in its simplest form. [2]

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(b) Using only the numbers in the list below,

1 2 3 5 8 10 16 20 24 100 200

write down

(i) the smallest prime number [1]

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(ii) a cube number [1]

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(iii) the square root of 400. [1]

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Examiner only

14. Sam is organising a game.
He has a bag containing 20 balls that are numbered from 1 to 20.

A player selects one ball at random from the bag.
Sam records the number on the ball and puts it back into the bag.

Sam charges players £1.50 to play the game once.
Each player who chooses a ball with the number 14 or higher wins £3.
80 people play the game once.

How much profit does Sam expect to make?
You must show all your working. [6]

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Expected profit = £ .....

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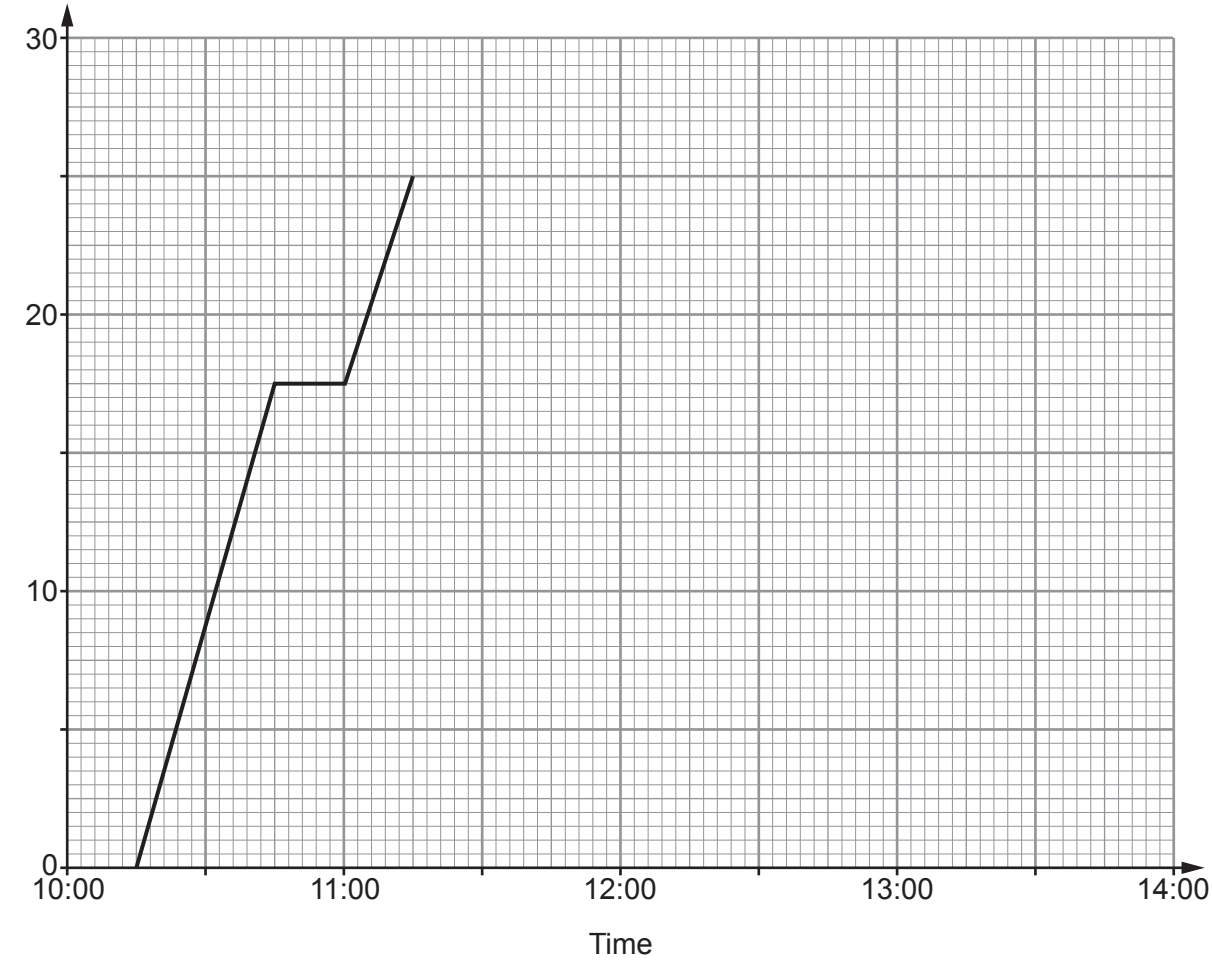
15. Sarah drove from her home to her friend's house.
Here is a travel graph for her journey.



(a) Sarah stopped at a cafe on her way to her friend's house.
How many minutes did it take Sarah to drive to the cafe? [1]

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(b) Sarah stayed at her friend's house for 90 minutes.
She then drove home at a steady speed without stopping.
She arrived home at 13:15.

(i) Complete the travel graph. [2]

(ii) Calculate the average speed for the journey home from her friend's house. [2]

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Average speed = ... miles per hour

Examiner only

16. (a) Share £480 in the ratio 7 : 5. [2]

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(b) Express 42 as a percentage of 300. [2]

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Examiner only

17.

(a) Malakai's dog eats $\frac{2}{3}$ of a tin of food each day.

What is the least number of tins Malakai needs to feed his dog for 7 days?
You must show all your working. [3]

(b) Malakai's dog has 15% black fur.
The rest of its fur is white.

Write the proportion of black fur to the proportion of white fur as a ratio in its simplest form. [2]

Examiner only

18. The table below shows some of the values of $y = 3x + 2$ for values of x from –2 to 3.

x	–2	–1	0	1	2	3
$y = 3x + 2$		– 1	2		8	

(a) Complete the table by finding the values of y for x = –2, x = 1 and x = 3. [2]

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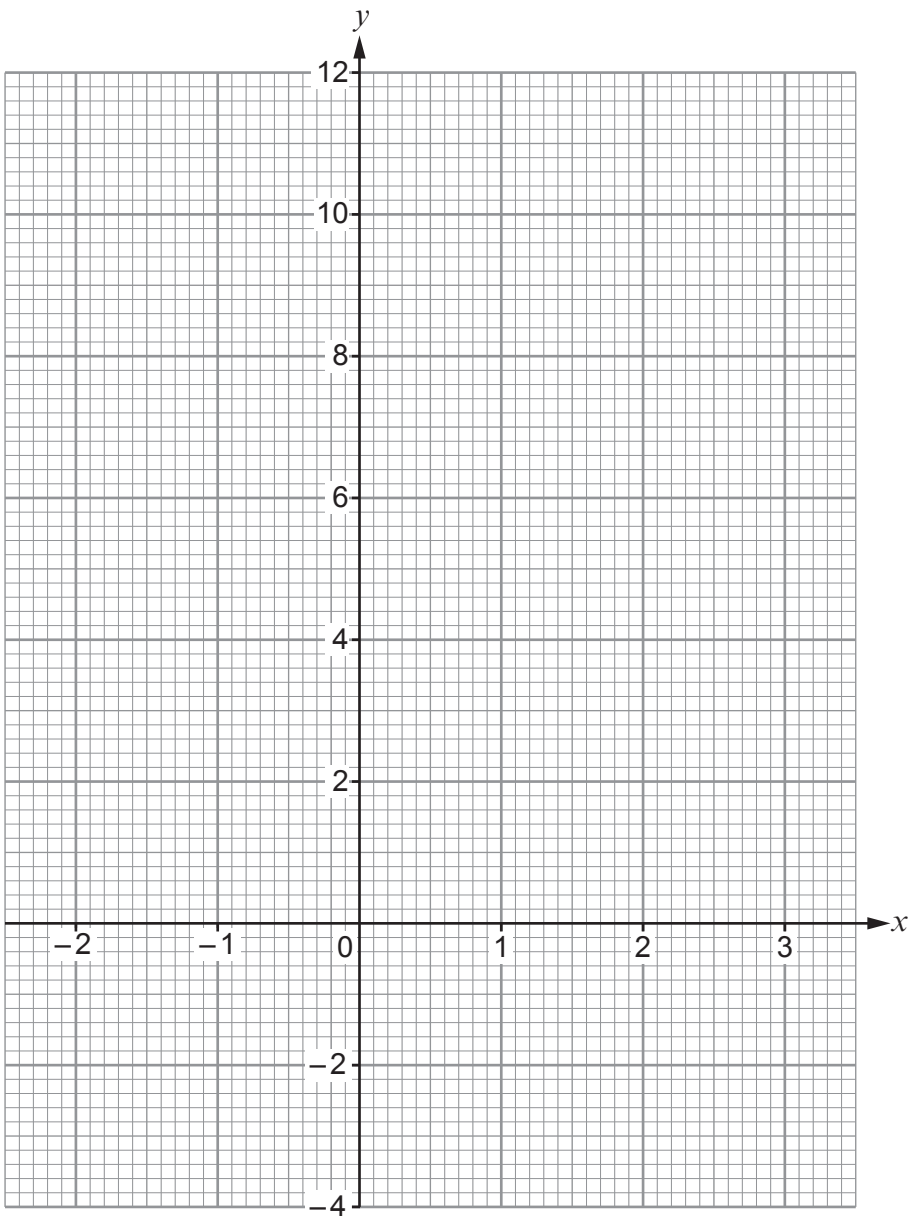
(b) On the graph paper below, draw the graph of $y = 3x + 2$ for values of x from –2 to 3. [2]



Examiner only

19. Tom, Molly and Peter work in a restaurant.
Customers give them tips if they receive good service.
The tips they are each given are collected in a single jar.

At the end of each week, the tips in the jar are shared in the ratio of hours they worked that week.

(a) One week, they work the following hours:
- Tom works for 7 hours
- Molly works for 8 hours
- Peter works for 10 hours.

Peter says,

I should receive 12% more of the tips than Tom.

Show that Peter is correct. [2]

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(b) At the end of a **different** week, there is £70 in the jar.

Peter works half as many hours as Tom.
Molly works twice as many hours as Tom.

How much should Molly receive? [3]

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Molly should receive £ .....

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20. A quarter of a circle has been cut from a rectangular card.

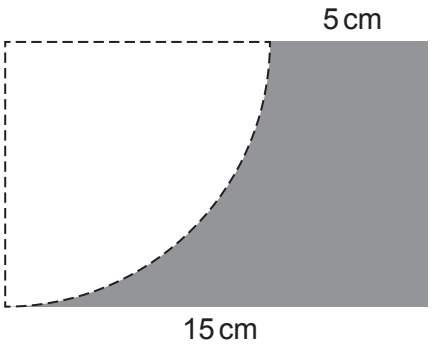

Diagram not drawn to scale

Calculate the perimeter of the remaining piece of card.
Give your answer in the form $a\pi + b$. [4]

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Perimeter of the remaining piece of card is ..... cm

Examiner only

21. (a) Given that $3^{m+4} = 1$, find the value of m. [1]

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(b) Betty bought c cakes costing £2 each and d doughnuts costing £1.50 each.
She paid with a twenty pound note and was given some change.

Write an inequality to show this information. [2]

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Examiner only

22. The shape below is a triangular prism with $CD = 7$ cm.
The cross-section of the prism is a right-angled triangle where $AB = 6$ cm and $AC = 10$ cm.

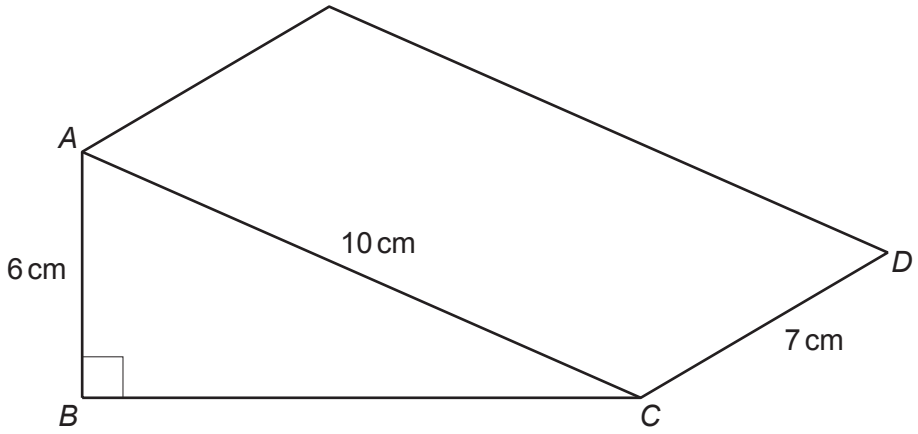

Diagram not drawn to scale

Calculate the total surface area of the triangular prism. [6]

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The total surface area of the triangular prism is ..... cm^2

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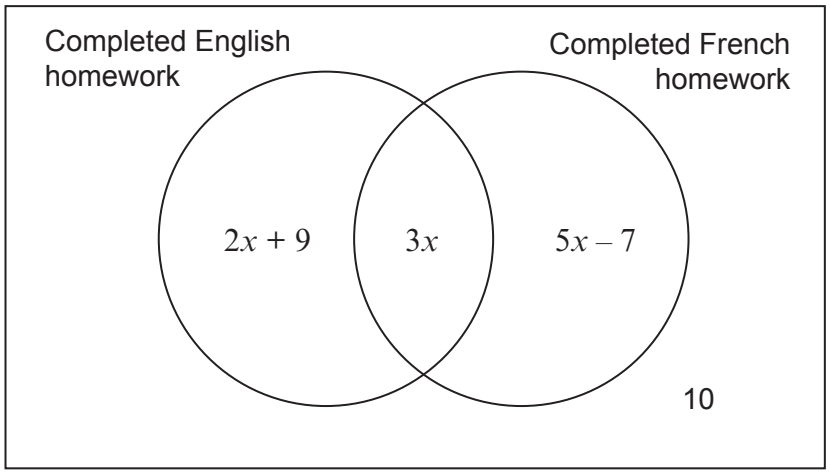
23. Last week, 142 pupils in Year 7 were given English homework and French homework.

10 pupils did not complete either homework.
Each expression in the following Venn diagram represents the number of pupils that completed at least one homework.



(a) Calculate the value of x. [3]

x = ...

(b) One pupil is chosen at random from the group.

What is the probability that this pupil completed **only** the French homework? [2]

The probability that a pupil completed **only** the French homework is .....

Examiner only

24. (a) Calculate the value of the reciprocal of 0·4. [2]
Give your answer as a decimal.

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(b) **Estimate** the value of $\frac{3\cdot02^3+\sqrt{4\cdot17\times8\cdot9}}{0\cdot289}$. [3]

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Examiner only

25.

Use:

$$\text{Pressure} = \frac{\text{Force (N)}}{\text{Area (cm}^2\text{)}}$$

A cuboid rests on a horizontal floor.

The cuboid exerts a force of 6·2 newtons on the floor.
The pressure of this cuboid on the floor is 0·05 N/cm^2.

The base of the cuboid in contact with the floor has a **width** of 8 cm.

Calculate the **length** of the base of the cuboid. [5]

Length of the base of the cuboid = ... cm

26. Work out the value of $5^{-32} \div 5^{-35}$. [2]

Examiner only

27. It takes 5 workers a total of 24 hours to build a wall 180 m long.

(a) The workers have enough materials left over to build a further 300 m of the same wall.

How long will it take **8 workers** to build this 300 m of wall? [3]

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It will take 8 workers ..... hours to build 300 m of wall.

(b) (i) What assumption have you made in answering part (a)? [1]

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(ii) If your assumption is not correct, what effect would this have on your answer to part (a)? [1]

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END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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