Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE

Time 2 hours

Paper reference **4MA1/1FR**

Mathematics A

PAPER 1FR

Foundation Tier

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.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
  Anything you write on the formulae page will gain NO credit.

Information

- The total mark for this paper is 100.
- 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.
- Check your answers if you have time at the end.

Turn over ▶

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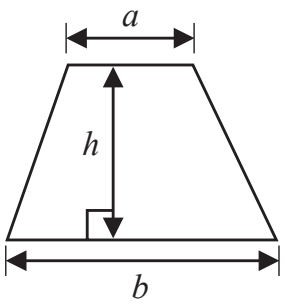
Pearson

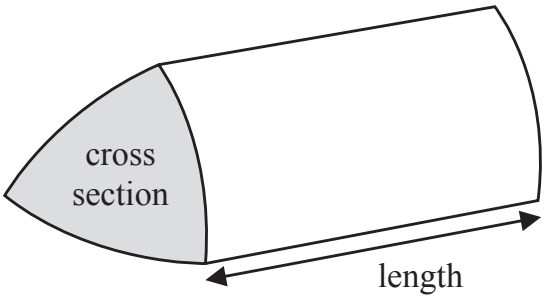
International GCSE Mathematics

Formulae sheet – Foundation Tier

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

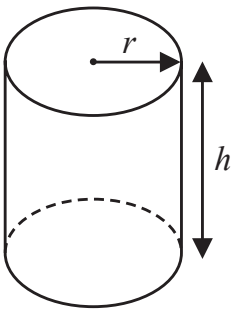


Volume of prism = area of cross section × length



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2\pi rh$



Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1

10	15	23	25	27	28	33	35

(a) From the numbers in the box, write down

(i) an even number

10 or 28 (1)

(ii) a multiple of 9

27 (1)

(iii) a prime number

23 (1)

(3)

Here are four cards.
Each card has a number on it.
The four cards are arranged to make the number 7358

7	3	5	8

(b) (i) Show how the four cards can be arranged to make the smallest number using all four cards.

3	5	7	8

(1)

(ii) Show how the four cards can be arranged to make a correct calculation below.

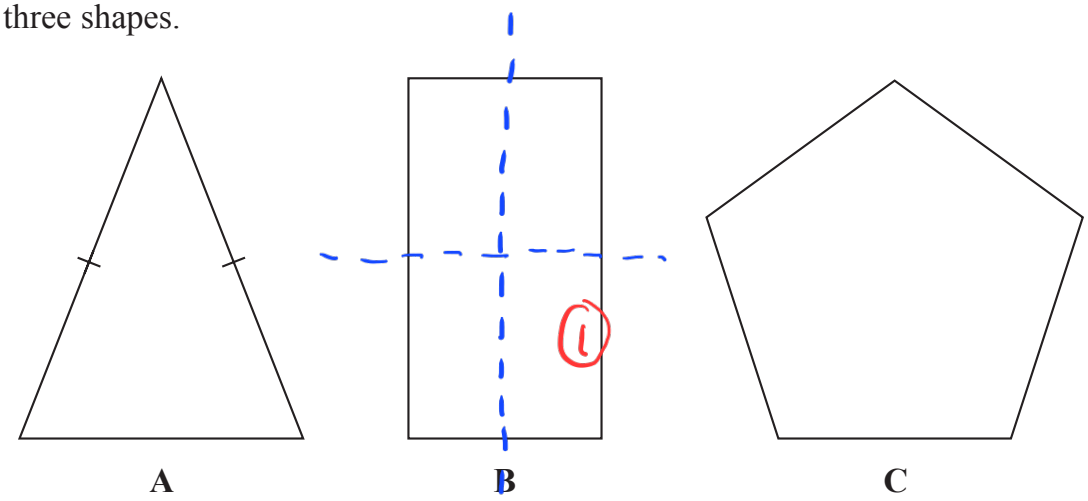
5	7	+	3	8	= 95

(1)

(2)

(Total for Question 1 is 5 marks)

2 Here are three shapes.



A **B** **C**

Shape **A** is a triangle.

(a) Write down the mathematical name for this type of triangle.

Isosceles (1)

(1)

Shape **B** is a rectangle.

(b) On shape **B**, draw its lines of symmetry.

(1)

Shape **C** is a regular polygon.

(c) Write down the order of rotational symmetry of shape **C**.

5 (1)

(1)

(Total for Question 2 is 3 marks)

3 (a) Change 6 metres into centimetres.

$6 \times 100 = 600$

600 (1)

..... centimetres

(1)

(b) Change 4500 grams into kilograms.

$4500 \div 1000 = 4.5$

4.5 (1)

..... kilograms

(1)

Lauren has 3 litres of fruit juice.
She is going to use the fruit juice to make some drinks for a party.
Each cup of drink will contain 225 millilitres of fruit juice.

Lauren is going to make as many cups of drink as possible.

(c) Work out how much fruit juice Lauren has left when she has made as many cups of drink as possible.
Give your answer in millilitres.

$3 \times 1000 = 3000$ (1)

$\frac{3000}{225} = 13.3$

≈ 13 cups (1)

$3000 - (13 \times 225)$ (1)

$= 3000 - 2925$

$= 75$ (1)

75

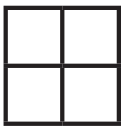
..... millilitres

(4)

(Total for Question 3 is 6 marks)

4 40 people were asked to name their favourite type of holiday.
The pictogram gives information about the number of these people who said each of City Break or Beach or Walking.

City Break	
Beach	
Walking	
Cruise	
Skiing	


represents 4 people

(a) How many of these people said Beach?

14 (1)

.....

(1)

4 people said Cruise.
9 people said Skiing.

(b) Show this information on the pictogram.

(2)

One person from the 40 people asked is selected at random.

(c) Find the probability that this person said City Break.

City Break = 7

$\frac{7}{40}$ (2)

$\frac{7}{40}$

.....

(2)

(Total for Question 4 is 5 marks)

5 Here are the first 4 terms of a number sequence.

+5 +5

7 12 17 22 27

(a) (i) Write down the next term of the sequence.

27 (1)

(1)

(ii) Explain how you worked out your answer.

Add 5. (1)

(1)

(b) Is 256 a number in the sequence?

Tick one of the boxes below and give a reason for your answer.

Yes	No
☐	☒

Give a reason for your answer.

Because the terms only end with 2 or 7. (1)

(1)

(Total for Question 5 is 3 marks)

6 (a) Write these numbers in order of size.
Start with the smallest number.

0.47 0.4 0.74 0.477 0.407

0.4 , 0.407 , 0.47 , 0.477 , 0.74 (1)

(1)

(b) Write 0.7 as a fraction.

$\frac{7}{10}$ (1)

(1)

(c) Write 30 as a fraction of 48
Give your fraction in its simplest form.

$\frac{30 \div 6}{48 \div 6} = \frac{5}{8}$ (1) (1)

$\frac{5}{8}$

(2)

(d) Write 23% as a decimal.

$\frac{23}{100} = 0.23$ (1)

0.23

(1)

Rita has some beads in a bag.

Of these beads, Rita gives

$\frac{1}{2}$ to Sheng

and $\frac{2}{5}$ to Tusco

Rita now has 3 beads left in the bag.

(e) Work out how many beads Rita originally had in the bag.

$1 - \left(\frac{1}{2} + \frac{2}{5}\right) = \frac{1}{10}$ (1)

$\frac{3}{\frac{1}{10}} = 30$ (1)

(1)

30

(3)

(Total for Question 6 is 8 marks)

7 (a) Simplify $3c + 5d - c + 2d$

$3c - c + 5d + 2d = 2c + 7d$

$2c + 7d$ (2)

(2)

(b) Simplify $8e \times 5f$

$8 \times 5 \times e \times f = 40ef$

$40ef$ (1)

(1)

(c) Solve $5r - 3 = 8$

$5r = 11$ (1)

$r = \frac{11}{5} = 2.2$ (1)

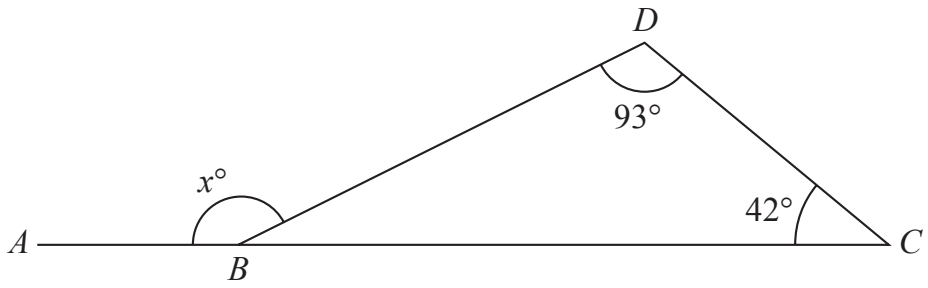
$r =$ 2.2

(2)

(Total for Question 7 is 5 marks)

8 *ABC* is a straight line and *BCD* is a triangle.

Diagram **NOT** accurately drawn



(a) Work out the value of x

$x = 180^\circ - (180^\circ - 93^\circ - 42^\circ)$ (1)

$= 93^\circ + 42^\circ$

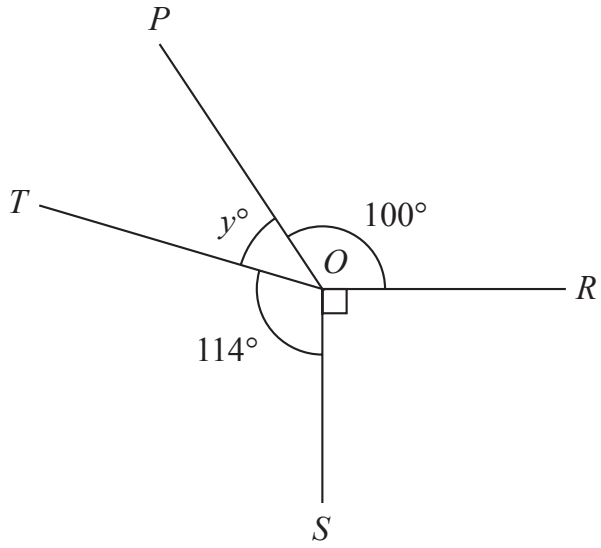
$= 135^\circ$ (1)

$x =$ 135

(2)

PO, *RO*, *SO* and *TO* are four straight lines.

Diagram **NOT** accurately drawn



(b) (i) Work out the value of y

$y = 360^\circ - 100^\circ - 114^\circ - 90^\circ$ (1)

$= 56^\circ$ (1)

$y =$ 56

(2)

(ii) Give a reason for your answer.

Angles at a point sum up to 360°. (1)

(1)

(Total for Question 8 is 5 marks)

9 In November, Andre received a monthly salary of 2500 euros.

Of this he spent

40% on his rent
300 euros on leisure

The rest of Andre's monthly salary was spent on household bills and on food where

the amount spent on household bills : the amount spent on food = 3 : 7

Work out how much of his November monthly salary Andre spent on food.

$0.4 \times 2500 = 1000$ (1)

$2500 - 1000 - 300 = 1200$ (1)

$\frac{1200}{(3+7)} \times 7 = 840$ (1) (1)

840 ..... euros

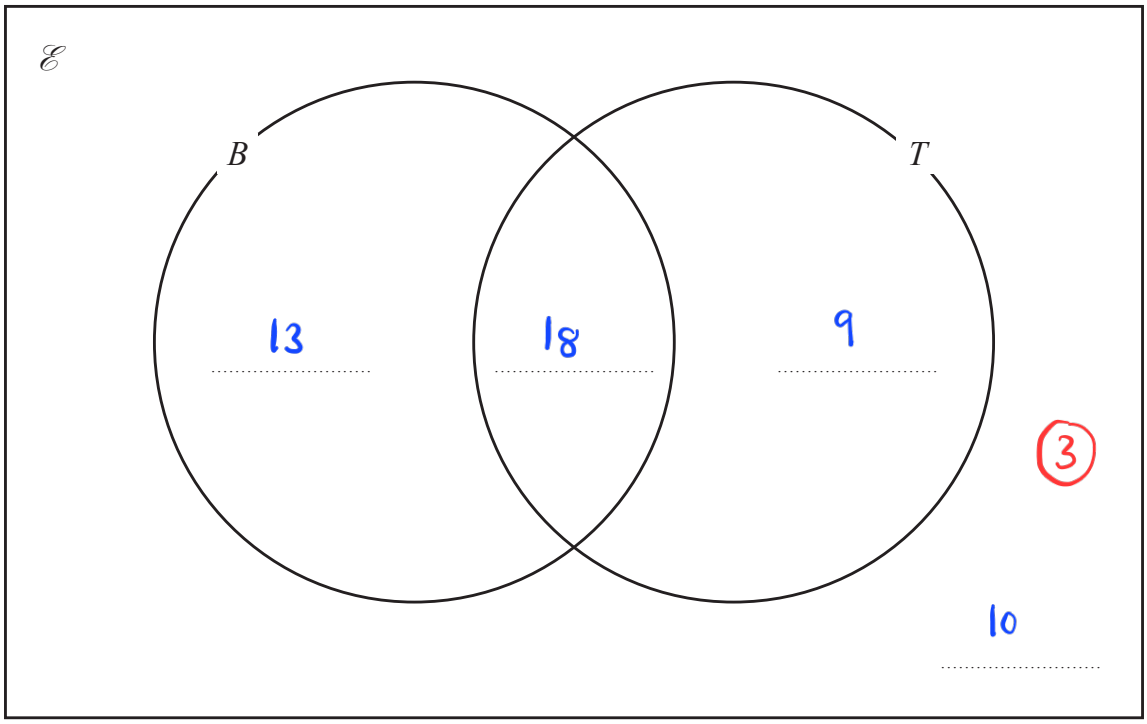
(Total for Question 9 is 4 marks)

10 50 students have lessons at a dance school.
Two of the lessons are ballet lessons (B) and tap lessons (T).

Of the 50 students

31 have ballet lessons
27 have tap lessons
18 have ballet lessons and tap lessons

Complete the Venn diagram for this information.



(Total for Question 10 is 3 marks)

11 The table shows information about the number of eggs laid by each of 36 hens in one week.

Number of eggs	Frequency
0	5
1	5
2	3
3	10
4	7
5	6

Work out the mean number of eggs laid.

$$\text{mean} = \frac{(0\times5)+(1\times5)+(2\times3)+(3\times10)+(4\times7)+(5\times6)}{36} \quad (1)$$

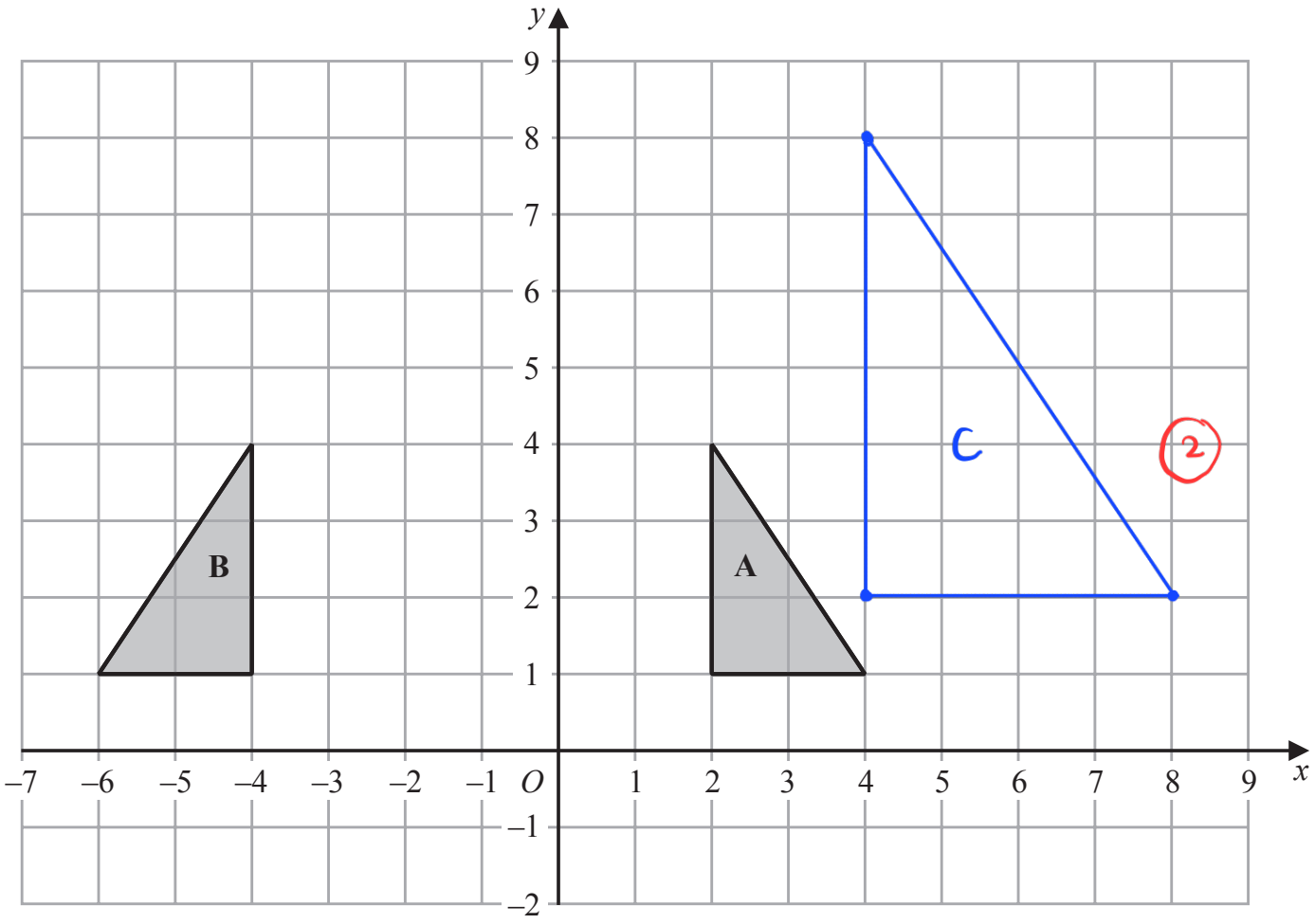
$$= \frac{99}{36} \quad (1)$$

$$= 2.75 \quad (1)$$

2.75

(Total for Question 11 is 3 marks)

12



(a) Describe fully the single transformation that maps triangle **A** onto triangle **B**

Reflection at line $x = -1$. (2)

(2)

(b) On the grid above, enlarge triangle **A** with scale factor 2 and centre O
Label your triangle **C**

(2)

(Total for Question 12 is 4 marks)

13 (a) Factorise $6x - 15$

$3(2x-5)$

$3(2x-5)$ (1)

(1)

There are 200 bolts in each box of bolts.
Samira buys c boxes of bolts.

Samira uses the bolts she bought to fill packets of bolts.
There are 50 bolts in each packet of bolts.
Samira sells d packets of bolts.

The total number of bolts Samira has left is T

(b) Write down a formula for T in terms of c and d

$T = 200c - 50d$

$T = 200c - 50d$

(3) 3

(Total for Question 13 is 4 marks)

---

14 Work out the value of $\sqrt{7.4} + \frac{5.1^2}{3}$

Write down all the figures on your calculator display.

$2.7202... + \frac{26.01}{3}$ (1)

$= 2.7202... + 8.67$

$= 11.3902941$ (1)

11.3902941

(Total for Question 14 is 2 marks)

---

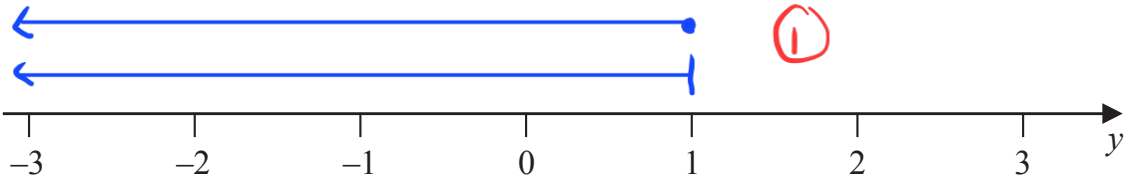
15 n is an integer.

(a) Write down all the values of n such that $-2 \leqslant n < 3$

$-2, -1, 0, 1, 2$ (2)

(2)

(b) On the number line, represent the inequality $y \leqslant 1$



(1)

(1)

(Total for Question 15 is 3 marks)

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16 Each time John plays a game, the probability that he wins the game is 0.65

John is going to play the game 300 times.

Work out an estimate for the number of games that John wins.

$0.65 \times 300 = 195$ (1) (1)

195

(Total for Question 16 is 2 marks)

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17 The shaded shape is made using three identical right-angled triangles and a square.

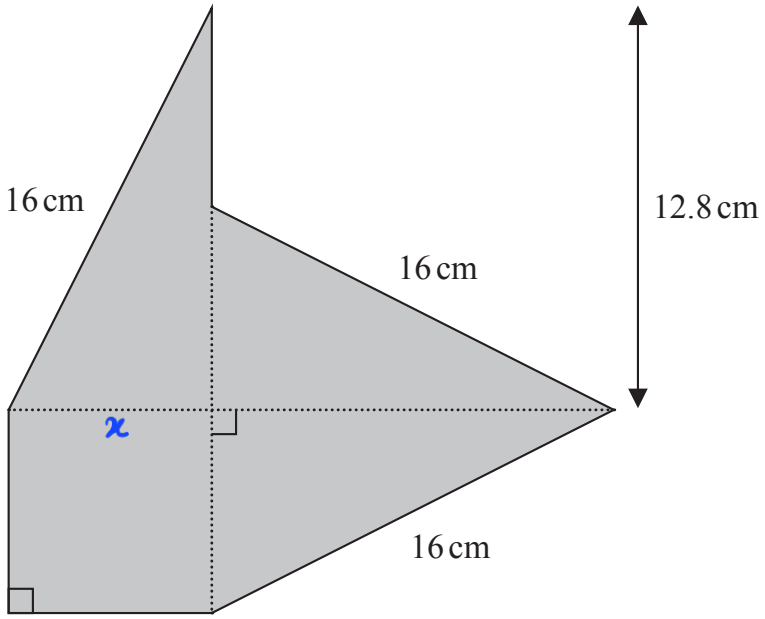


Diagram **NOT** accurately drawn

Work out the perimeter of the shaded shape.

$x^2 = 16^2 - 12.8^2$ (1)

$= 92.16$

$x = \sqrt{92.16}$ (1)

$= 9.6$

Perimeter $= 16 + 9.6 + 9.6 + 16 + 16 + (12.8 - 9.6)$ (1)

$= 70.4$ (1)

70.4 ..... cm

(Total for Question 17 is 4 marks)

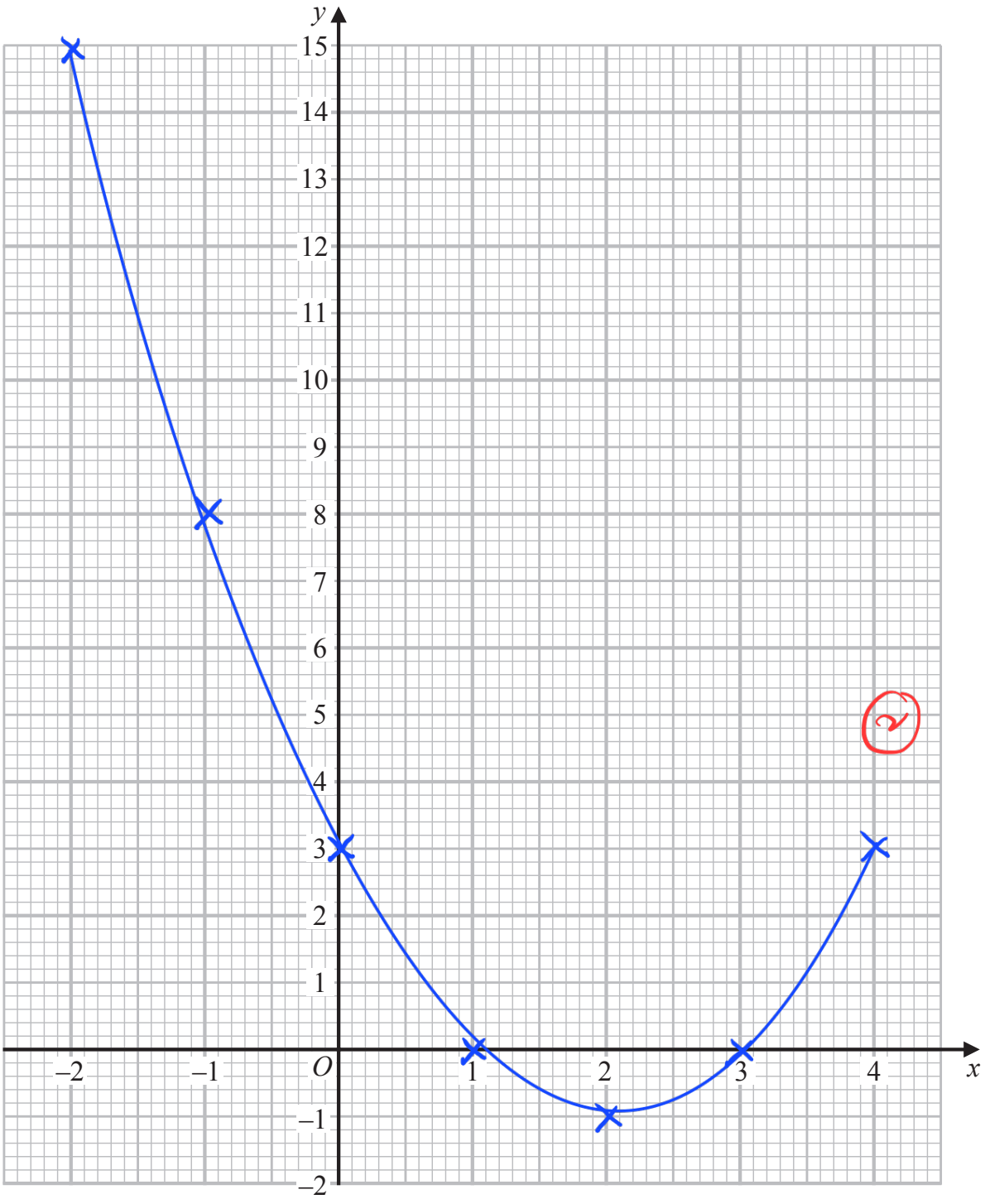
18 (a) Complete the table of values for $y = x^2 - 4x + 3$

x	–2	–1	0	1	2	3	4
y	15	8	3	0	-1	0	3

2

(2)

(b) On the grid, draw the graph of $y = x^2 - 4x + 3$ for values of x from –2 to 4



2

(2)

(Total for Question 18 is 4 marks)

19 Yusuf sat 8 examinations.

Here are his marks for 5 of the examinations.

64 68 72 75 77 80 80

For his results in all 8 examinations

the mode of his marks is 80
the median of his marks is 74
the range of his marks is 16

Find Yusuf's marks for each of the other 3 examinations.

a = 80 (1)

b : range, 16 = 80 − b

b = 64 (1)

median, 74 = $\frac{75 + c}{2}$

c = 73 (1)

64

(1) 73

80

(Total for Question 19 is 4 marks)

20 (a) Work out the lowest common multiple (LCM) of 36 and 120

multiples of 36 : 36 , 72 , 108 , 144 , 180 , 216 , 252 , 288 , 324 , 360

multiples of 120 : 120 , 240 , 360 (1)

360 (1)

(2)

$A = 5^2 \times 7^4 \times 11^p$
$B = 5^m \times 7^{n-5} \times 11$

m, n and p are integers such that
$m > 2$
$n > 10$
$p > 1$

(b) Find the highest common factor (HCF) of A and B
Give your answer as a product of powers of its prime factors.

HCF of A and B : $5^2 \times 7^4 \times 11$

$5^2 \times 7^4 \times 11$ (2)

(2)

(Total for Question 20 is 4 marks)

21 Milly went on a car journey.
She travelled from Anesey to Breigh to Clando and then to Duckbridge.

For Anesey to Breigh, Milly drove the 245 km in 2.5 hours.
For Breigh to Clando, Milly drove the 220 km at an average speed of 80 km/h
For Clando to Duckbridge, Milly drove at an average speed of 72 km/h in 50 minutes.

Work out Milly's average speed, in km/h, for the journey from Anesey to Duckbridge.
Give your answer correct to one decimal place.

Breigh to Clando : $\frac{220\text{ km}}{80\text{ km/h}} = 2.75\text{ h}$ (1)

Clando to Duckbridge : $72\text{ km/h} \times \frac{50}{60}\text{ h}$

$= 60\text{ km}$ (1)

Total : $\frac{245 + 220 + 60}{2.5 + 2.75 + \frac{50}{60}}$ (1) $= \frac{525}{73/12}$

$= 86.3$ (1)

86.3 ..... km/h

(Total for Question 21 is 4 marks)

22 (a) Write 5×10^4 as an ordinary number.

50 000 (1)

(1)

(b) Write 0.000 06 in standard form.

6×10^{-5} (1)

(1)

(c) Work out $(4 \times 10^{512}) \div (1.6 \times 10^{700})$
Give your answer in standard form.

$\frac{4}{1.6} \times 10^{512-700}$ (1)

$= 2.5 \times 10^{-188}$ (1)

2.5×10^{-188}

(2)

(Total for Question 22 is 4 marks)

23 (a) Simplify $x^4 \times x^5$

$x^{4+5} = x^9$ (1)

x^9

(1)

(b) Simplify $(4y^2)^3$

$4^3 \times y^{2\times3}$ (1)

$= 64y^6$ (1)

$64y^6$

(2)

(c) Factorise $n^2 - 7n + 12$

$(n-3)(n-4)$ (2)

$(n-3)(n-4)$

(2)

(Total for Question 23 is 5 marks)

24 Jonty has a storage container in the shape of a cuboid, as shown in the diagram.

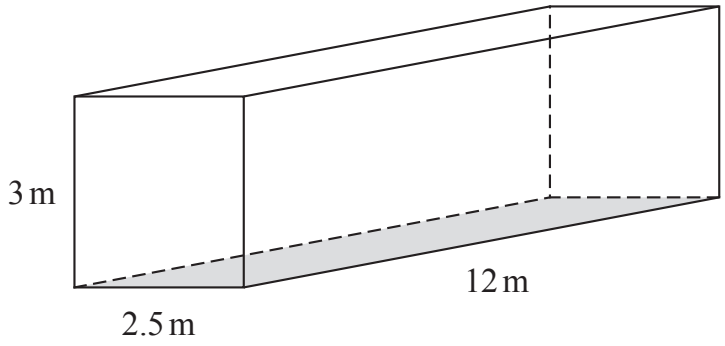


Diagram **NOT** accurately drawn

Jonty is going to paint the outside of his storage container, apart from the base which is shown shaded in the diagram.
He needs enough paint to cover the four sides and the top.

Each tin of paint covers an area of 15 m^2

The cost of each tin of paint recently increased by 10%
After the increase, the cost of each tin of paint is £26.95

Jonty says

"**Before** the increase, I could have bought enough paint for less than £200"

Show that Jonty is correct.
Show your working clearly.

Area : $3 \times 2.5 = 7.5$ (1)

$12 \times 3 = 36$

$12 \times 2.5 = 30$

Total area : $(2 \times 7.5) + (2 \times 36) + 30$

$= 15 + 72 + 30$ (1)

$= 117$

Tin of paint needed = $\frac{117}{15} = 7.8$ (1)

$\approx$ 8 tins are needed

100% + 10% = 110% which is £26.95 (1)

Price at 100% : $x = \frac{26.95}{110} \times 100$

(1)

$= 24.5$

24.5×8 tins $= 196$

Yes. Jonty is correct. (1)

(Total for Question 24 is 6 marks)

TOTAL FOR PAPER IS 100 MARKS

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