Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Time 1 hour 30 minutes

Paper reference **1MA1/2F**

△ ▲

Mathematics

PAPER 2 (Calculator)

Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). 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.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P68722A

B:1/1/1/1/1/1/

P 6 8 7 2 2 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write the following numbers in order of size.
Start with the smallest number.

−7 7 0 −2 −1

−7 −2 −1 0 7

(Total for Question 1 is 1 mark)

2 Write 37% as a fraction.

$\frac{\%}{100} = \frac{37}{100}$

$\frac{37}{100}$

(Total for Question 2 is 1 mark)

3 Write down the 7th odd number.

1 3 5 7 9 11 13

13

(Total for Question 3 is 1 mark)

4 Change 53 centimetres to millimetres.

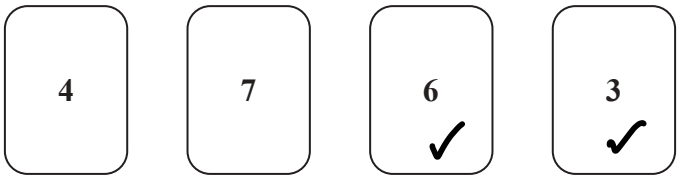
1cm = 10mm (×10)

53 × 10 = 530

530 millimetres

(Total for Question 4 is 1 mark)

5 Here are four cards.
There is a number on each card.



Write down the smallest 4-digit even number that can be made using each card only once.

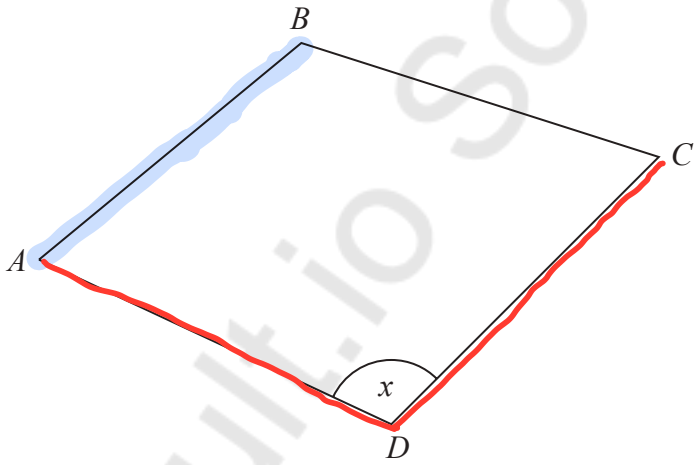
↳ end in 0, 2, 4, 6, 8

3	4	7	6
1000s	100s	10s	1s

3476

(Total for Question 5 is 1 mark)

6 Here is a quadrilateral $ABCD$.



(a) Measure the length of the side AB.
Give your answer in centimetres.

4.5 centimetres

(1)

(b) Measure the size of the angle marked x.

110 °

(1)

(Total for Question 6 is 2 marks)

7 Myles writes down the distance readings from his car at the start and end of a journey.

Start of journey	1	2	4	6	8	miles
End of journey	1	2	8	4	5	miles

Myles knows that the cost of petrol for this journey is 13p per mile.

Work out the total cost of the petrol used for this journey.
Give your answer in pounds.

12845 − 12468 = 377 miles

377 × 13p = 4901p

÷100

£49.01

100p = £1

÷100

£ 49.01

(Total for Question 7 is 4 marks)

8 Safiya wants to hire a van.
She uses this rule to work out the cost of hiring a van for a number of days.

Cost = £45 × number of days

Safiya is going to hire the van for 7 days.

Work out the cost.

Cost = £45 × 7
= £315

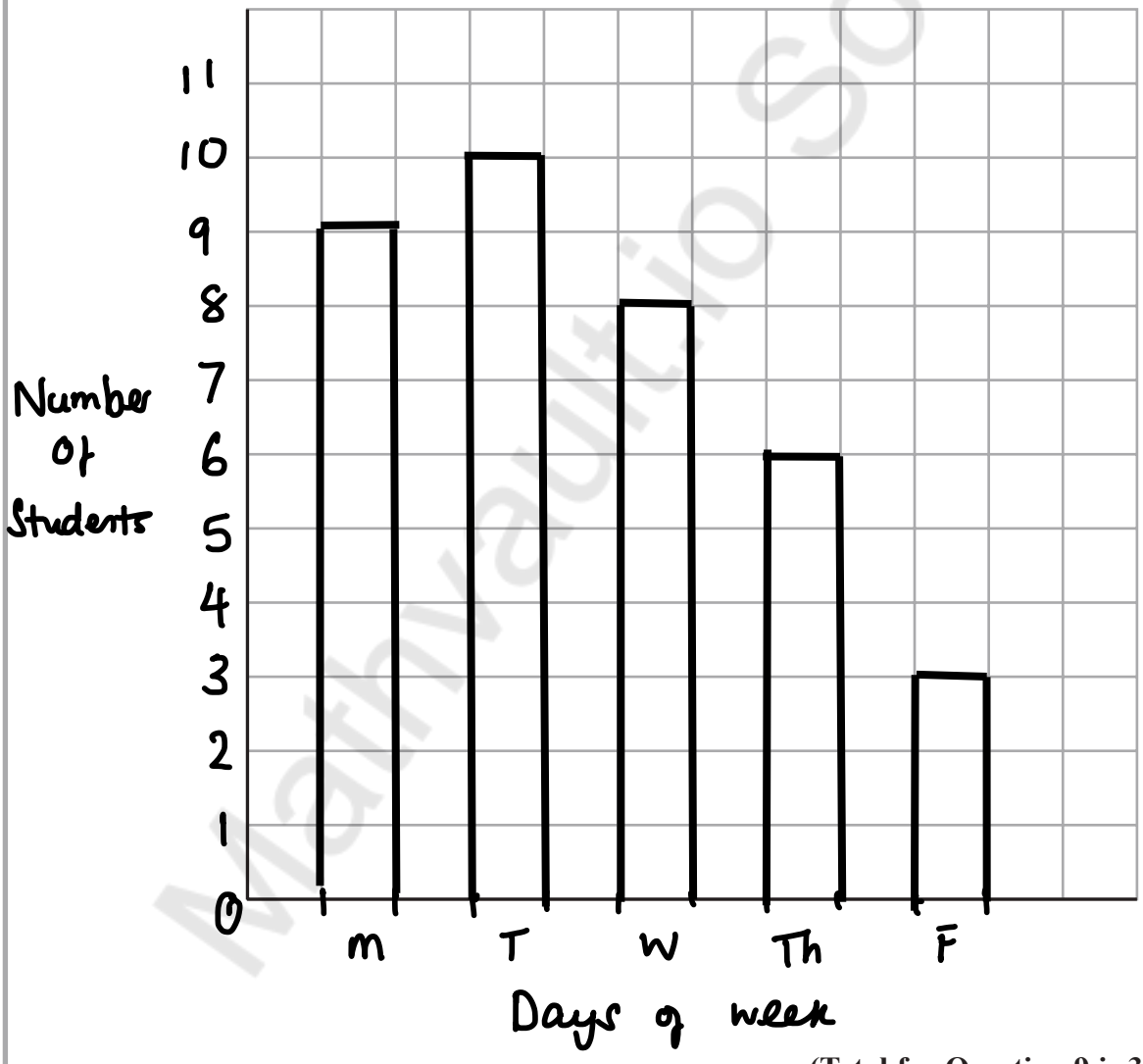
£ 315

(Total for Question 8 is 2 marks)

9 The table shows information about the number of students who arrived late at school each day one week.

	Number of students
Monday	9
Tuesday	10
Wednesday	8
Thursday	6
Friday	3

On the grid, draw a bar chart for this information.



(Total for Question 9 is 3 marks)

10 Here is part of a bus timetable between Wigan and Bolton.

Wigan	07 20		07 40		07 55
Blackrod	07 49		08 09		08 24
Horwich	08 00	08 14	08 20	08 29	08 36
Lostock	08 09	08 20	08 29	08 37	08 44
Park Road	08 14	08 34	08 41	08 48	08 58
Bolton	08 32	08 51	08 58	09 05	09 15

(a) How many minutes should the 07 20 bus take to go from Wigan to Lostock?

7:20 → 8:00 (+40 mins) → 8:00 (+9 mins)

49 minutes

(2)

Alison goes from Blackrod to Bolton by bus.

One day Alison leaves her house at 08 00
She takes 7 minutes to walk to the bus stop in Blackrod.
She takes 15 minutes to walk from the bus stop in Bolton to work.

Alison needs to be at work for 09 20

(b) Will Alison get to work for 09 20?
You must show how you get your answer.

08:00 (+7 mins) 08:07 — 08:09 Bus → 08:58 Bolton (+2 mins) 09:00 (+13 mins) 09:13

Yes, she will arrive at 09:13

(3)

(Total for Question 10 is 5 marks)

11 214 people go on a school trip.
The people on the trip are either adults or children.

There are 14 adults on the trip.
35% of the children on the trip are wearing a hat.

Find the number of children on the trip who are **not** wearing a hat.

Children = 214 - 14 = 200

100% - 35% = 65%

65% of 200

↓ ÷100

0.65 × 200 = 130

130

(Total for Question 11 is 4 marks)

12 (a) Work out $\frac{5}{8}$ of 132

$\frac{5}{8} \times 132$

82.5

(2)

(b) Write the following fractions in order of size.
Start with the smallest fraction.

$\frac{3}{8}$ ×8 ×8 $\quad \frac{9}{32}$ ×2 ×2 $\quad \frac{1}{4}$ ×16 ×16 $\quad \frac{21}{64}$ ③

$\frac{24}{64}$ ④ $\quad \frac{18}{64}$ ② $\quad \frac{16}{64}$ ①

$\frac{1}{4}$ $\frac{9}{32}$ $\frac{21}{64}$ $\frac{3}{8}$

(2)

(Total for Question 12 is 4 marks)

13 A shop has two different special offers on milk.

75p

Pay for 2 bottles
get 1 bottle free

£1.28

Pay for 1 bottle
get 1 bottle half price

Which offer gives the better value for money?
You must show how you get your answer.

2 pints = 75p
2 pints = 75p
2 pints = 0p
6 pints = 150p or £1.50
÷6 → 1 pint = 25p
÷6

4 pints = £1.28
4 pints = £0.64
8 pints = £1.92
£1.28 ÷ 2 = £0.64
÷8 → 1 pint = £0.24
÷8

4 pints is better.

(Total for Question 13 is 4 marks)

14 (a) Simplify $4c + 7d + 3c - 1d$

7c + 6d

7c + 6d

(2)

(b) Solve $5(2m - 6) = 40$

$10m - 30 = 40$

$+30 \quad +30$

$10m = 70$

$\div 10 \quad \div 10$

$m = 7$

$m =$ 7

(3)

There are x sweets in a box.

There are y sweets in a packet.

(c) Write an expression, in terms of x and y, for the total number of sweets in 3 boxes and 2 packets.

$\times 3$ ($x = 1$ box → $3x = 3$ boxes) $\times 3$

$3x + 2y$

$\times 2$ ($y = 1$ packet → $2y$ 2 packets) $\times 2$

3x + 2y

(2)

(Total for Question 14 is 7 marks)

15 Hetvi asked her friends how many stickers they each have in their collection.
Here are her results.

77 86 94 87 71 98
74 103 71 83 82 84
97 91 88 89 75

(a) Show this information in a stem and leaf diagram.

71 71 74 75 77
82 84 85 86 87 88 89
91 94 97 98
103

7	1 1 4 5 7
8	2 4 5 6 7 8 9
9	1 4 7 8
10	3

stems ↑ leaves ↑ 1-digit only

Key: 7 | 1 = 71 stickers

(3)

(b) Find the median number of stickers.

middle

86

(2)

(Total for Question 15 is 5 marks)

16 Water flows through each of the pipes that fill a lake at the same rate.
It takes 4 of the pipes 12 hours to fill the lake.

Work out how many hours it would take 6 pipes to fill $\frac{1}{4}$ of the lake.

÷4 (4 pipes = 12h) x4
x6 (1 pipe = 48h) ÷6
(6 pipes = 8h)

$\frac{1}{4}$ of 8 = 8 ÷ 4 = 2 hours

2 hours

(Total for Question 16 is 3 marks)

17 The table shows information about the heights of 80 teenagers.

Height (h cm)	Frequency	midpoint	midpoint × freq.
$150 < h \leqslant 160$	8	155	155 × 8 = 1240
$160 < h \leqslant 170$	14	165	165 × 14 = 2310
$170 < h \leqslant 180$	24	175	175 × 24 = 4200
$180 < h \leqslant 190$	30	185	185 × 30 = 5550
$190 < h \leqslant 200$	4	195	195 × 4 = 780
	80		14080

Work out an estimate for the mean height of the teenagers.

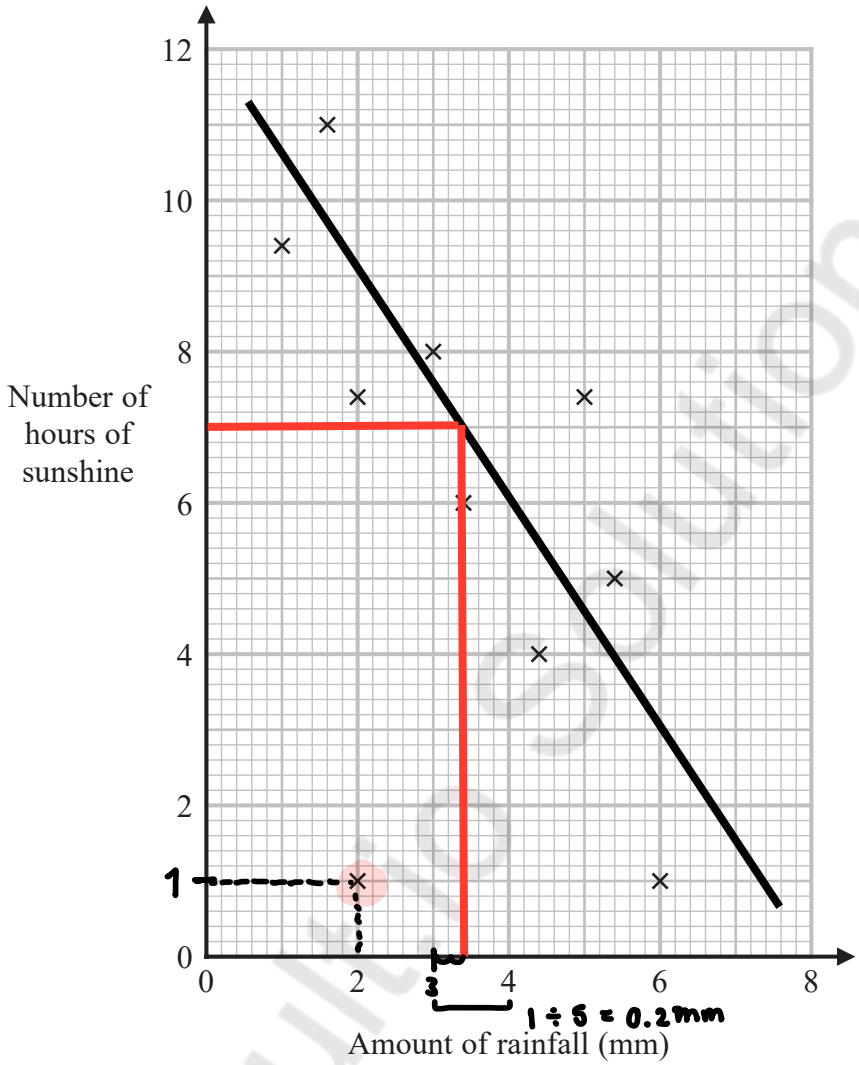
$$\text{Mean} = \frac{14080}{80}$$

$$= 176 \text{ cm}$$

176 cm

(Total for Question 17 is 3 marks)

18 The scatter graph shows information about the amount of rainfall, in mm, and the number of hours of sunshine for each of ten English towns on the same day.



One of the points is an outlier.

(a) Write down the coordinates of this point.

(2 , 1)

(1)

(b) Ignoring the outlier, describe the relationship between the amount of rainfall and the number of hours of sunshine.

Number of hours of sunshine decreases as the amount of rainfall increases.

(1)

On the same day in another English town there were 7 hours of sunshine.

(c) Using the scatter graph, estimate the amount of rainfall in this town on this day.

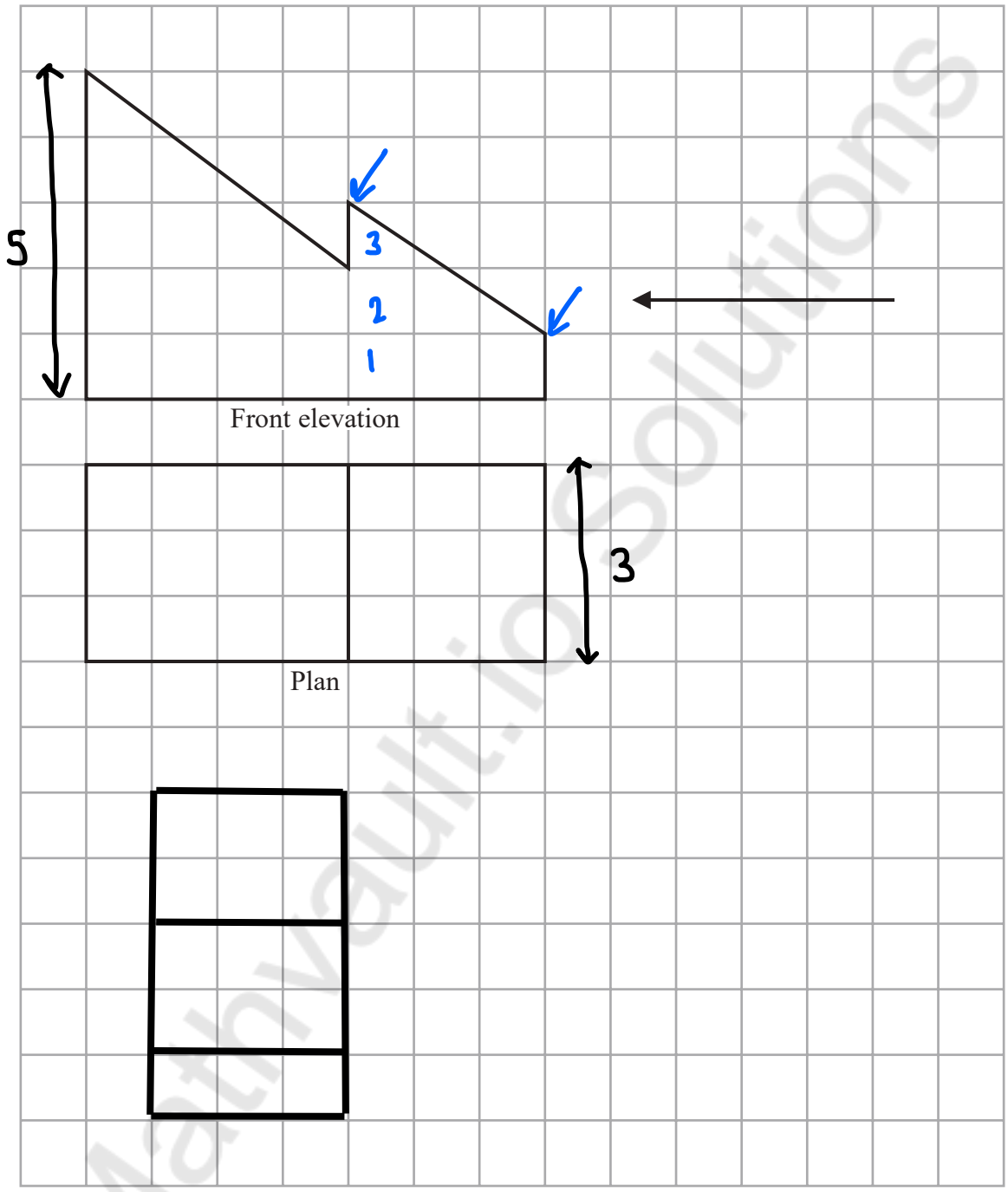
3.4 mm

(2)

(Total for Question 18 is 4 marks)

19 The front elevation and the plan of a solid are shown on the grid.

On the grid, draw the side elevation of the solid from the direction of the arrow.



(Total for Question 19 is 2 marks)

20 Here are the first five terms of an arithmetic sequence.

6n

Sequence 7, 13, 19, 25, 31

6 (+1) 12 (+1) 18 (+1) 24 (+1) 30 (+1)

(+6) (+6) (+6) (+6)

(a) Find an expression, in terms of n, for the nth term of this sequence.

$6n + 1$

position

$6n + 1$

(2)

The nth term of a different sequence is $8 - 6n$

(b) Is -58 a term of this sequence?
You must show how you get your answer.

$8 - 6n = -58$

$-8 \qquad -8$

$-6n = -66$

$\div -6 \qquad \div -6$

$n = 11$

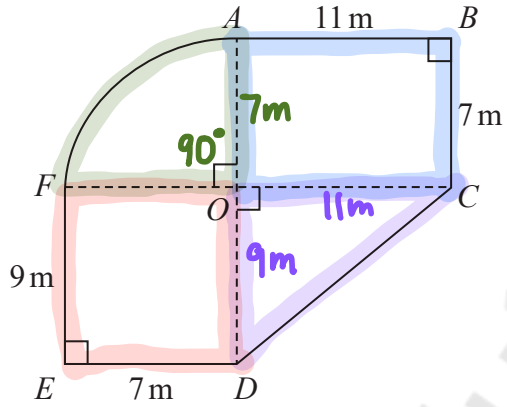
-58 is the 11th term.

(2)

(Total for Question 20 is 4 marks)

21 The diagram shows a plan of Jason's garden.

ABCO and *DEFO* are rectangles.
CDO is a right-angled triangle.
AFO is a sector of a circle with centre *O* and angle *AOF* = 90°



Jason is going to cover his garden with grass seed.
Each bag of grass seed covers 14 m² of garden.
Each bag of grass seed costs £10.95

Work out how much it will cost Jason to buy all the bags of grass seed he needs.

ABCO area = l x w
= 11 x 7
= 77m²

AFO Area = $\pi r^2 \div 4$
= $\pi(7)^2 \div 4$
= $49\pi \div 4$
= $\frac{49\pi}{4}$ m²

DEFO area = l x w
= 9 x 7
= 63m²

CDO area = $\frac{1}{2}bh$
= $\frac{1}{2} \times 11 \times 9$
= $\frac{1}{2} \times 99$
= 49.5 m²

Total area = $77 + 63 + 49.5 + \frac{49\pi}{4}$
= 227.98451 m²

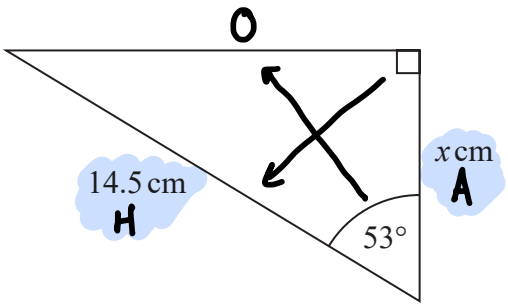
Bags needed = 227.98451 ÷ 14
= 16.2846...
≈ 17 bags

Total cost = 17 x 10.95
= 186.15

£ 186.15

(Total for Question 21 is 5 marks)

22



Work out the value of x.
Give your answer correct to 3 significant figures.

$\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$

$\cos(53) = \frac{x}{14.5}$

$\times 14.5$ $\times 14.5$

$14.5 \times \cos(53) = 8.726317\ldots$

$x =$ 8.73

(Total for Question 22 is 2 marks)

23 Ella invests £7000 for 2 years in an account paying compound interest.

In the first year, the rate of interest is 3% $100 + 3 = 103\%$ $\div 100 \rightarrow 1.03$
In the second year, the rate of interest is 1.5% $100 + 1.5 = 101.5\%$ $\div 100 \rightarrow 1.015$

Work out the value of Ella's investment at the end of 2 years.

Final amount = investment $\times$ multiplier$^{\text{time}}$

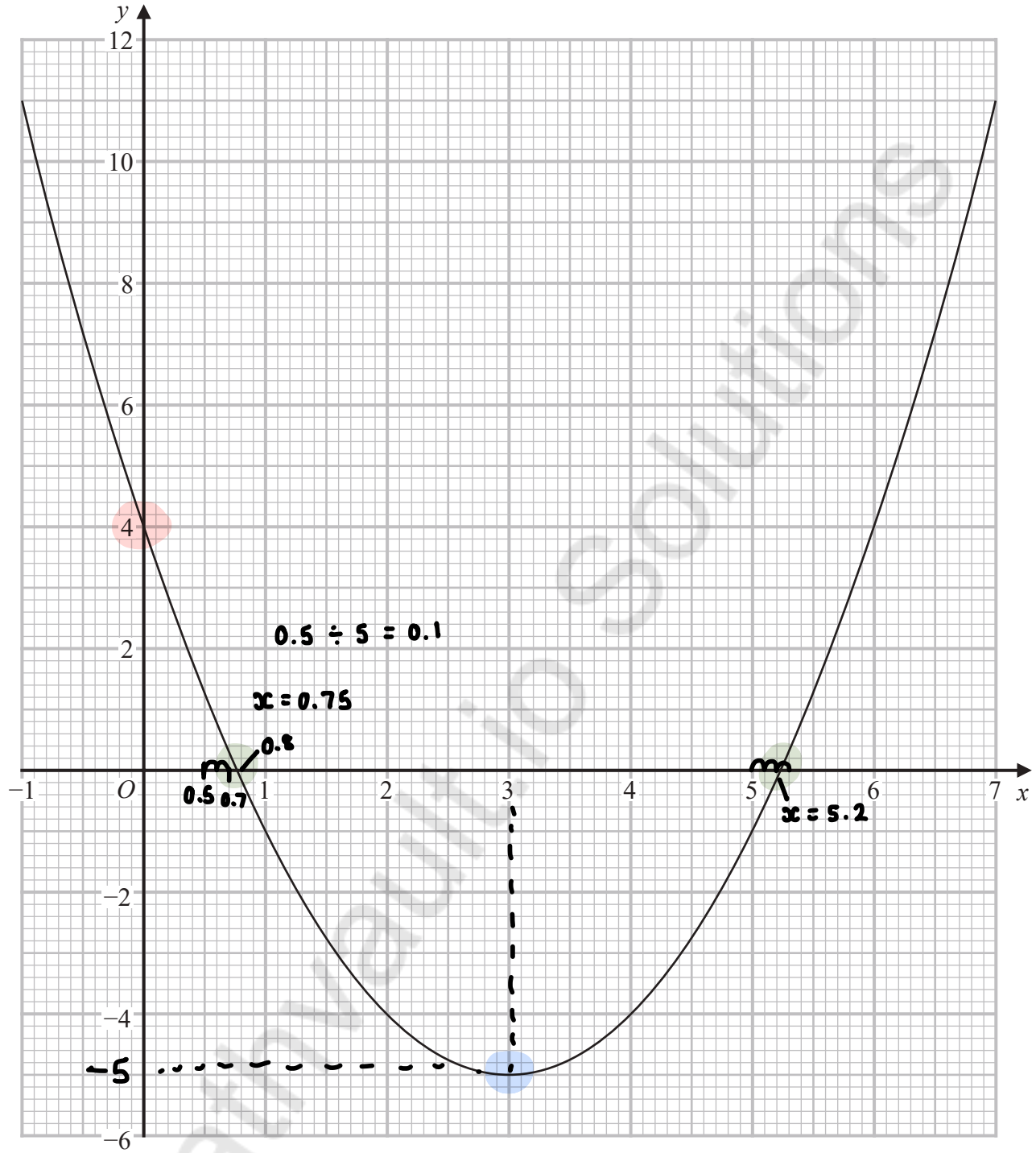
$= 7000 \times 1.03^1 \times 1.015^1$

$= 7318.15$

£ 7318.15

(Total for Question 23 is 3 marks)

24 Here is the graph of $y = x^2 - 6x + 4$



(a) Write down the y intercept of the graph of $y = x^2 - 6x + 4$

4

(1)

(b) Write down the coordinates of the turning point of the graph of $y = x^2 - 6x + 4$

(3 , -5)

(1)

(c) Use the graph to find estimates for the roots of $x^2 - 6x + 4 = 0$

crosses x-axis

0.75 and 5.2

(2)

(Total for Question 24 is 4 marks)

25 (a) Find the value of the reciprocal of 0.8

"swap"

10ths

$\frac{8}{10} \rightarrow \frac{10}{8} = 1.25$

1.25

(1)

$x = 4700$ correct to 2 significant figures.

100s — non-0 digit

(b) Complete the error interval for x.

nearest 100 = degree of accuracy

100 ÷ 2 = 50

4700 + 50 = 4750

4700 − 50 = 4650

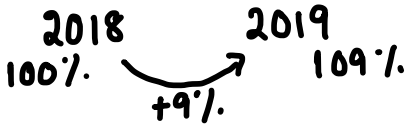
4650 $\leqslant x <$ 4750

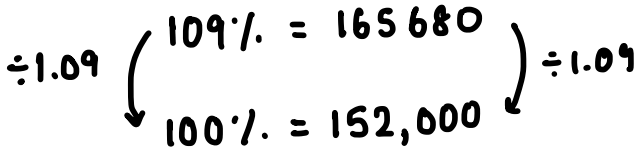
(2)

(Total for Question 25 is 3 marks)

26 The population of a town increased by 9% between 2018 and 2019
The population in 2019 was 165 680

Calculate the population in 2018





152,000

(Total for Question 26 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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