

Please check the examination details below before entering your candidate information

Candidate surname

Other names

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

Centre Number

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Candidate Number

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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.
- Good luck with your examination.

Turn over ►

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Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write 1476 to the nearest 10

1480

(Total for Question 1 is 1 mark)

2 Write a fraction in the box to make the calculation correct.

$$1 - \frac{3}{10} = \boxed{\frac{7}{10}}$$

(Total for Question 2 is 1 mark)

3 Here is a list of numbers.

3 3 3 3 4 4 5 7 8

Write down the mode of the numbers.

3

(Total for Question 3 is 1 mark)

4 Write down a 3 digit number that is a multiple of 5

100

(Total for Question 4 is 1 mark)

5 Write 0.4 as a percentage.

40 %

(Total for Question 5 is 1 mark)

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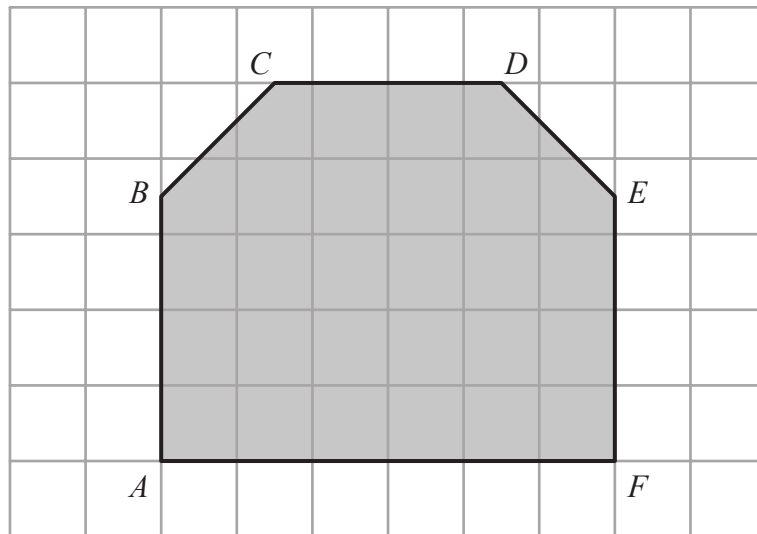
- 6 Write the following numbers in order of size.
Start with the smallest number.

-11 -2 8 -7 3 10

-11, -7, -2, 3, 8, 10

(Total for Question 6 is 1 mark)

- 7 Here is polygon $ABCDEF$ on a square grid.



- (a) Write down the mathematical name of the polygon.

hexagon

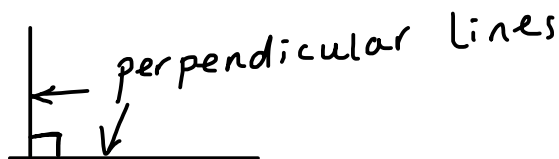
(1)

- (b) Which side of the polygon is parallel to the side CD ?

AF

(1)

- (c) Write down a side of the polygon that is perpendicular to the side AF .



AB

(1)

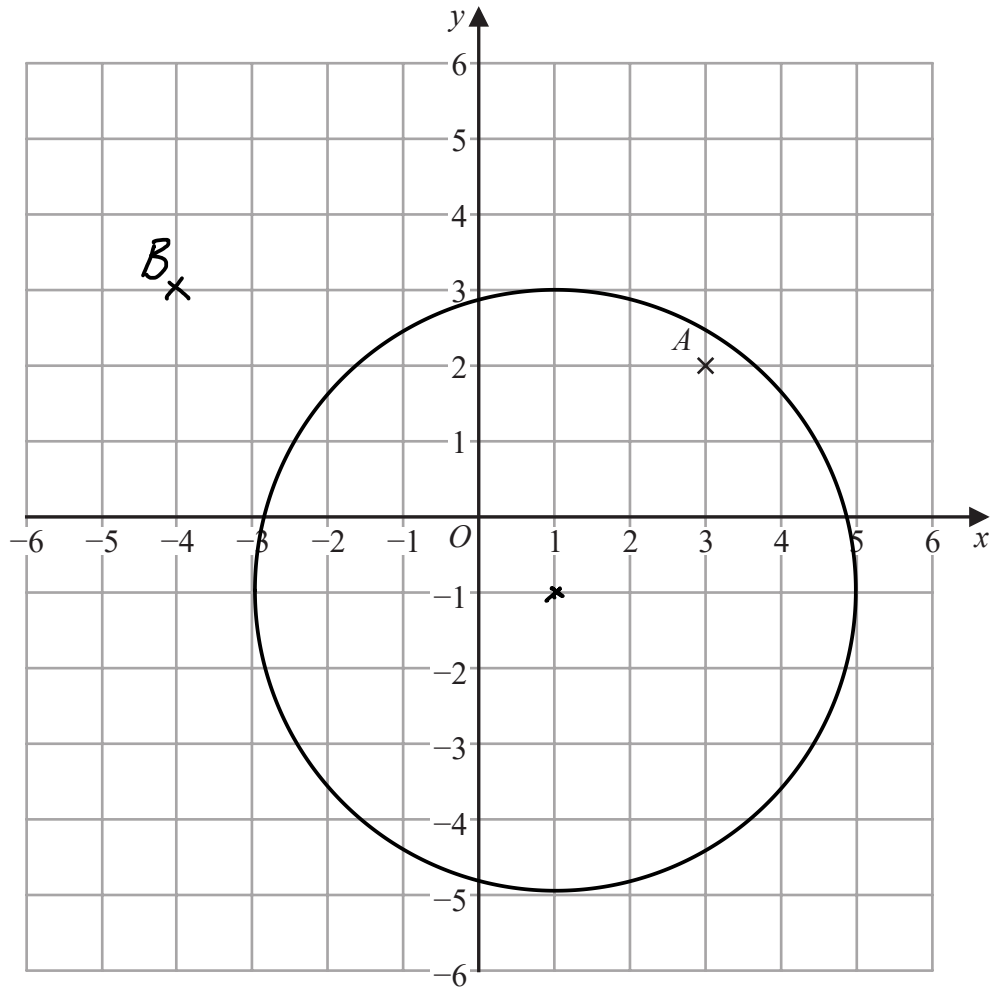
(or EF)

(Total for Question 7 is 3 marks)



P 6 6 3 0 4 A 0 3 2 0

8 Here is a centimetre grid.



(a) Write down the coordinates of point A .

(3, 2)
(1)

(b) On the grid, mark with a cross (\times) the point with coordinates $(-4, 3)$
Label this point B .

(1)

(c) On the grid, draw the circle with
centre $(1, -1)$
and radius 4 cm.

(2)

(Total for Question 8 is 4 marks)

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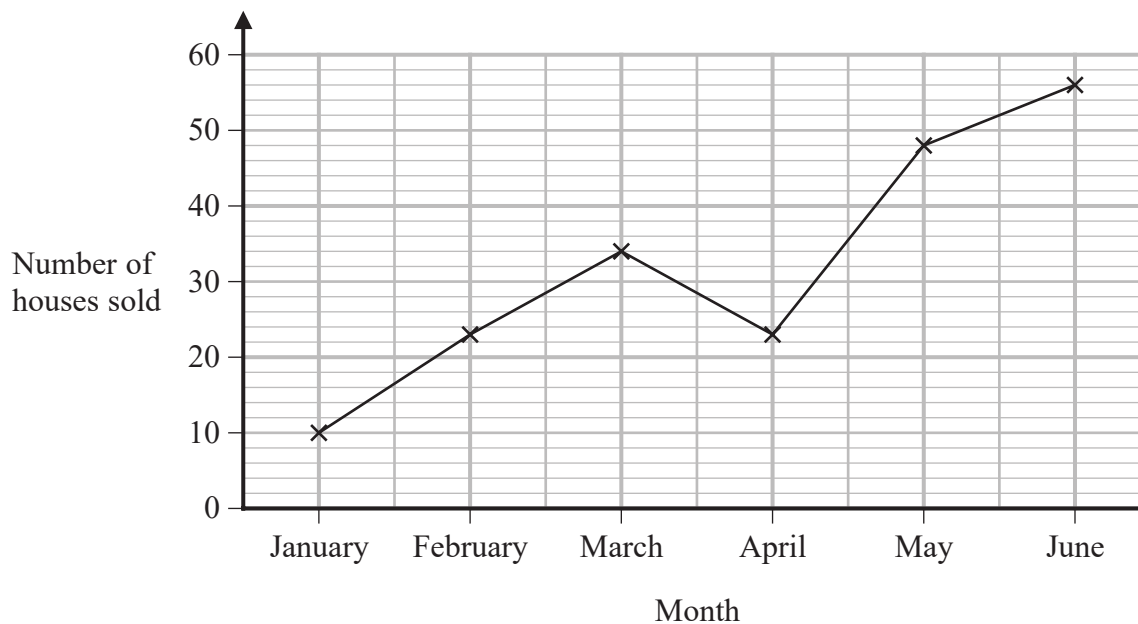
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- 9 The graph shows information about the number of houses sold by an estate agent in each of six months last year.



- (a) How many houses were sold by the estate agent in February?

23

(1)

- (b) For this estate agent, write down the ratio of the number of houses sold in January to the number of houses sold in June.

Jan : June

10 : 56

10 : 56

(2)

(Total for Question 9 is 3 marks)



10 Sonia wants to book a holiday.
The holiday will cost £1428

Sonia will pay a deposit of £150
She will then pay the rest of the cost in 6 equal monthly payments.

How much is each monthly payment?

$$1428 - 150 = 1278$$

$$\frac{1278}{6} = £213$$

£ 213

(Total for Question 10 is 3 marks)

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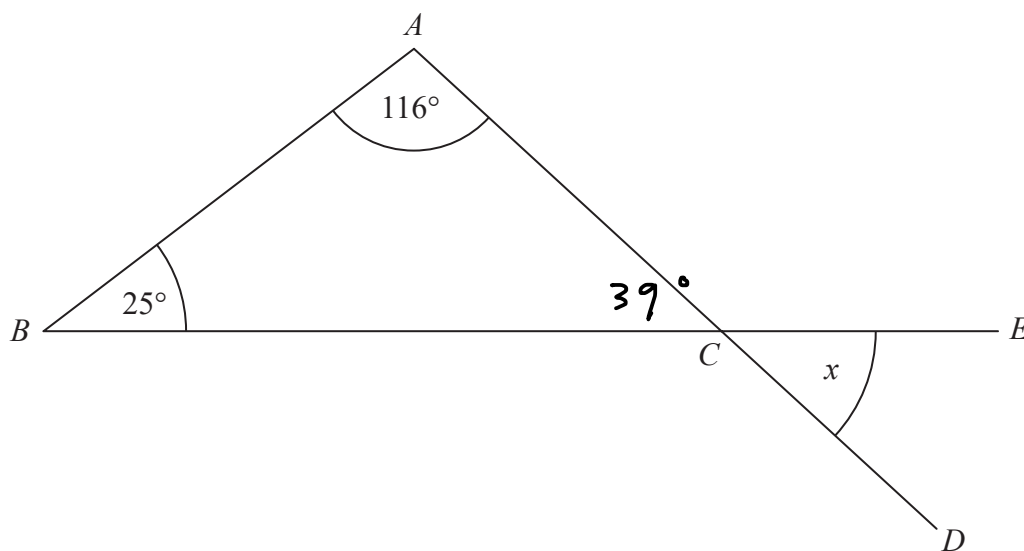
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11 The diagram shows a triangle ABC .



ACD and BCE are straight lines.

Work out the size of the angle marked x .
Give a reason for each stage of your working.

$$180 - 25 - 116 = 39^\circ$$

Angle $ABC = 39^\circ$ (angles in a triangle add to 180°)

$$x = 39^\circ \text{ (opposite angles are equal)}$$

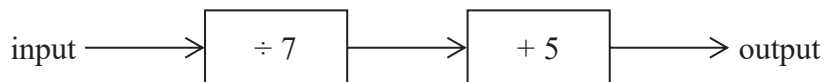
..... 39

(Total for Question 11 is 3 marks)



P 6 6 3 0 4 A 0 7 2 0

12 Here is a number machine.

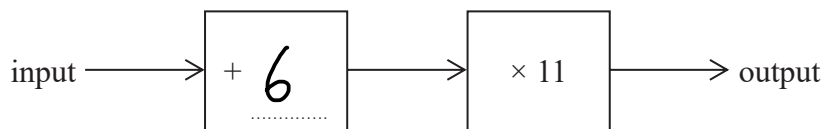


(a) Work out the output when the input is 28

$$28 \div 7 = 4 \qquad 4 + 5 = 9 \qquad \dots\dots\dots 9$$

(1)

Here is a different number machine.
The number machine is not complete.



When the input is 8, the output is 154

(b) Complete the number machine.

$$154 \div 11 = 14 \qquad (2)$$
$$8 + \square = 14$$
$$14 - 8 = \underline{\underline{6}}$$

(Total for Question 12 is 3 marks)

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13 Sophie works in a bed shop.
During the last three months she sold 198 beds.

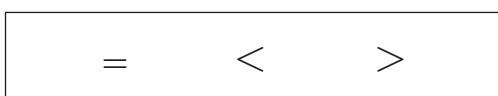
59 beds were sold without a mattress.
45 beds were double beds.
17 of the single beds were sold without a mattress.
67 of the 83 king size beds were sold with a mattress.

Use this information to complete the two-way table.

	Single	Double	King size	Total
With mattress	53	19	67	139
Without mattress	17	26	16	59
Total	70	45	83	198

(Total for Question 13 is 3 marks)

14 The box below contains three mathematical symbols.



From the box, choose a symbol to make each of the following statements correct.

(i) $\frac{5}{8} > \frac{2}{8}$ (1)

(ii) $-2 \times -3 = -3 + 9$ (1)

6 6

(Total for Question 14 is 2 marks)



15 The table shows information about the number of social media accounts used by each of 300 students.

Number of social media accounts	Frequency
0	3
1	57
2	84
3	75
4	81

(a) Work out the total number of social media accounts used by these students.

$$0 + 57 + 168 + 225 + 324 = 774$$

$$\begin{array}{r} 774 \\ \hline \end{array} \quad (2)$$

(b) Find the median number of social media accounts used by these students.

150th student

$$\begin{array}{r} 3 \\ \hline \end{array} \quad (2)$$

(Total for Question 15 is 4 marks)

16 On a scale drawing, a building has length 12.4 cm and width 9.4 cm. The real length of the building is 62 metres.

Work out, in metres, the real width of the building.

$$62 \div 12.4 = 5$$

$$\begin{array}{r} 12.4 \\ \times 5 \\ \hline 62 \end{array}$$

$$\begin{array}{r} 9.4 \\ \times 5 \\ \hline 47 \end{array}$$

$$9.4 \times 5 = 47$$

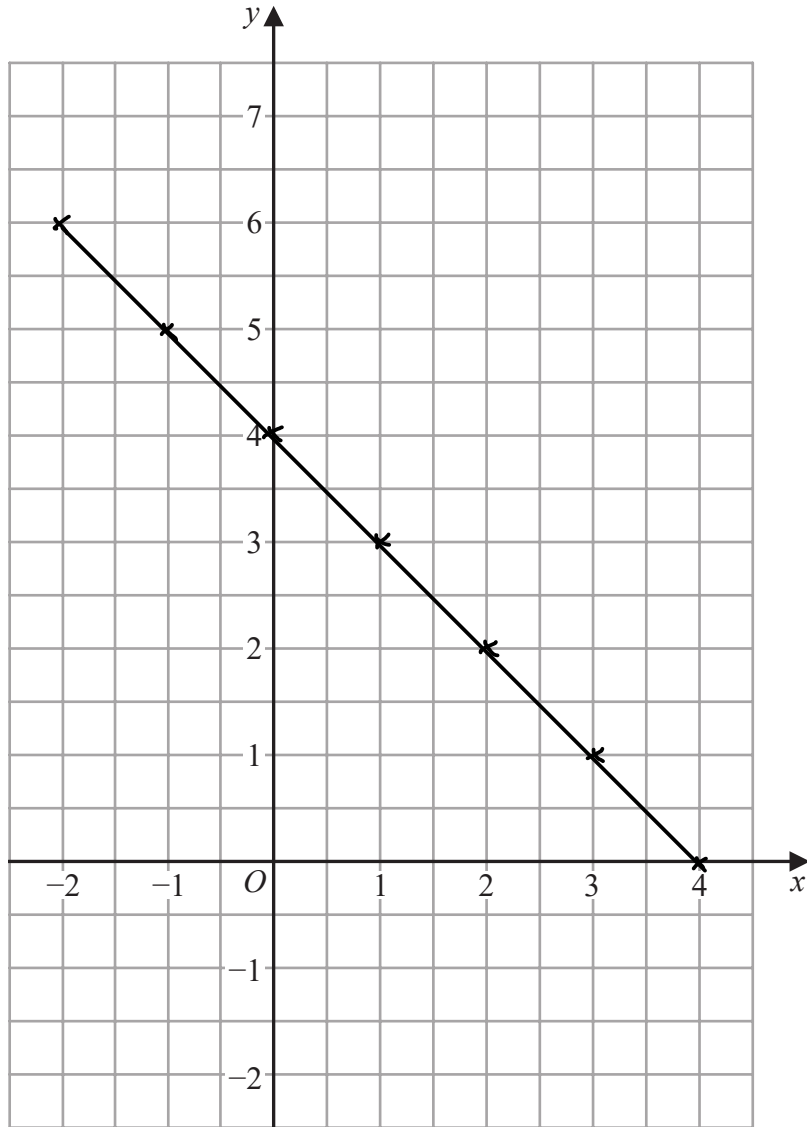
$$\begin{array}{r} 47 \\ \hline \end{array} \quad \text{metres}$$

(Total for Question 16 is 3 marks)



17 On the grid below, draw the graph of $y = 4 - x$ for values of x from -2 to 4

x	-2	-1	0	1	2	3	4
y	6	5	4	3	2	1	0



(Total for Question 17 is 3 marks)



P 6 6 3 0 4 A 0 1 1 2 0

18 This sign was in a doctor's waiting room.

115 appointments were missed last month.
These missed appointments were a total of 25.3 hours.

Work out the mean length of time for each missed appointment.
Give your answer in minutes.

$$\frac{25.3}{115} = 0.22 \text{ (hours)}$$

$$0.22 \times 60 = 13.2 \text{ minutes}$$

..... 13.2 minutes

(Total for Question 18 is 3 marks)

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19 Nimra buys a 3 kg box of sweets for £17.60

She puts the sweets into bags to sell.
Each bag contains 150 g of sweets.

Nimra fills as many bags as possible.
She will sell each bag for the same price.

Nimra wants to make a profit of at least 35%

Assuming she sells all the bags,
what is the lowest price Nimra should charge for each bag?

3000g for £17.60

$$\frac{3000}{150} = 20 \text{ bags of sweets}$$

35% of 17.60

$$0.35 \times 17.60 = £6.16 \text{ (minimum profit)}$$

$$17.60 + 6.16 = £23.76 \text{ (total price for all bags)}$$

$$\frac{23.76}{20} = 1.188$$

$$\therefore \text{Min price} = \underline{\underline{£1.19}}$$

£ 1.19

(Total for Question 19 is 5 marks)

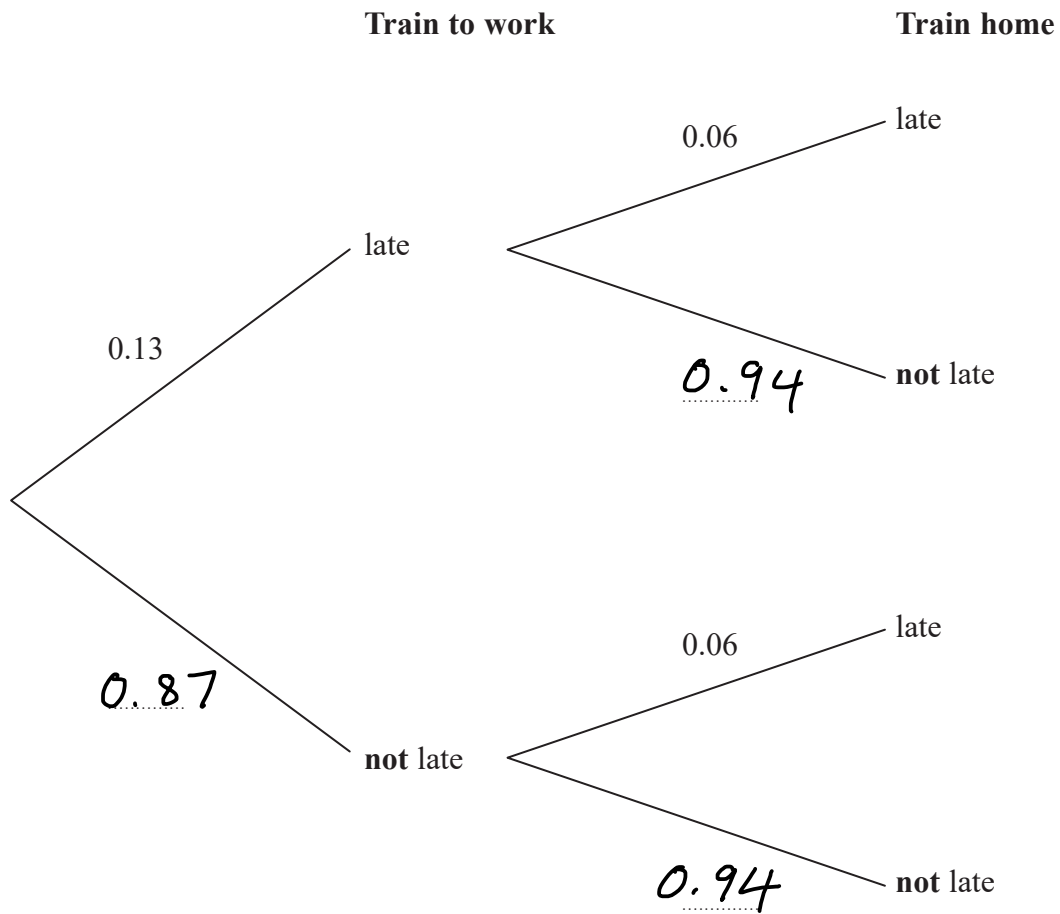


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20 Lorena gets a train at the same time each morning to go to work.
She gets a train at the same time each evening to come home.

The probability tree diagram shows the probabilities of each train arriving late.

(a) Complete the probability tree diagram.



(2)

For a day that Lorena goes to work,

(b) work out the probability that the train to work and the train home will both arrive late.

$$0.13 \times 0.06 = \frac{39}{5000}$$

$$\frac{39}{5000}$$

(2)

(Total for Question 20 is 4 marks)



21 (a) Simplify $(x^3)^5$

$$\frac{x^{15}}{\quad\quad\quad}$$

(1)

(b) Expand and simplify $4(x + 3) + 7(4 - 2x)$

$$4x + 12 + 28 - 14x$$

$$\frac{40 - 10x}{\quad\quad\quad}$$

(2)

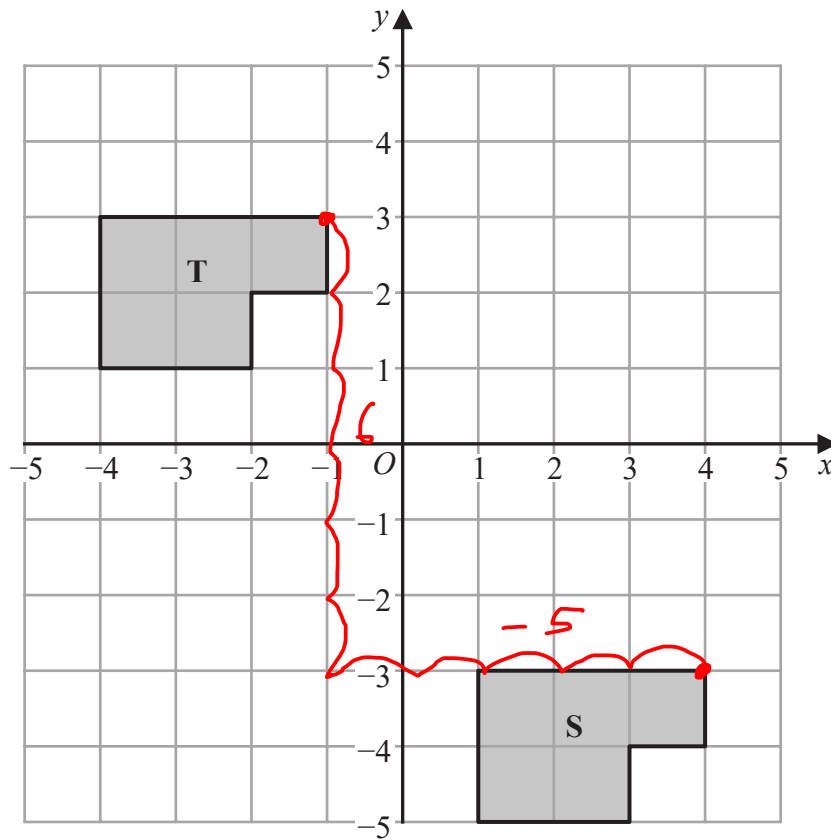
(c) Factorise fully $15x^3 + 3x^2y$

$$\frac{3x^2(5x + y)}{\quad\quad\quad}$$

(2)

(Total for Question 21 is 5 marks)





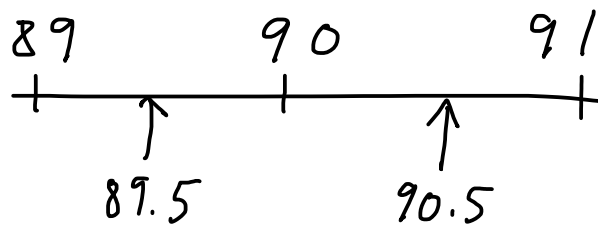
Describe fully the single transformation that maps shape S onto shape T.

Translation $\begin{pmatrix} -5 \\ 6 \end{pmatrix}$

(Total for Question 22 is 2 marks)

23 The length of a football pitch is 90 metres, correct to the nearest metre.

Complete the error interval for the length of the football pitch.



$89.5 \text{ m} < \text{length} < 90.5 \text{ m}$

(Total for Question 23 is 2 marks)



24 Festival A will be in a rectangular field with an area of $80\,000\text{ m}^2$
The greatest number of people allowed to attend Festival A is 425

Festival B will be in a rectangular field 700 m by 2000 m. $700 \times 2000 = 1\,400\,000$
The greatest number of people allowed to attend Festival B is 6750

The area per person allowed for Festival B is greater than the area per person allowed for Festival A.

- (a) How much greater?
Give your answer correct to the nearest whole number.

$$\text{area per person} \therefore \frac{\text{area}}{\text{people}}$$

$$A// \frac{80000}{425} = 188.2$$

$$B// \frac{1400000}{6750} = 207.4$$

$$207.4 - 188.2 = 19 \text{ (nearest whole no.)}$$

$$\dots\dots\dots 19 \dots\dots\dots \text{ m}^2$$

(4)

Callum says,

“ 300 cm^2 is the same as 3 m^2 because there are 100 cm in 1 m so you divide by 100”

Callum’s method is wrong.

- (b) Explain why.

$$1\text{ m}^2 = 100\text{ cm} \times 100\text{ cm}$$

$$1\text{ m}^2 = 10000\text{ cm}^2$$

$$3\text{ m}^2 = 30000\text{ cm}^2 \text{ not } 300\text{ cm}^2$$

(1)

(Total for Question 24 is 5 marks)



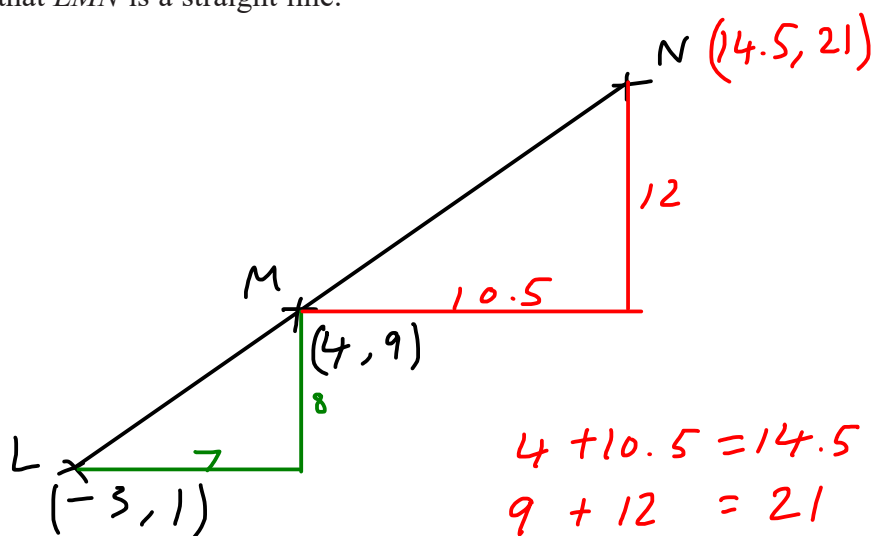
25 The points L , M and N are such that LMN is a straight line.

The coordinates of L are $(-3, 1)$

The coordinates of M are $(4, 9)$

Given that $LM : MN = 2 : 3$,

find the coordinates of N .



$$\begin{aligned}
 2 \text{ parts} &= \begin{pmatrix} 7 \\ 8 \end{pmatrix} \\
 1 \text{ part} &= \begin{pmatrix} 3.5 \\ 4 \end{pmatrix} \\
 3 \text{ parts} &= \begin{pmatrix} 10.5 \\ 12 \end{pmatrix} \quad \begin{matrix} 10.5 \text{ right} \\ 12 \text{ up} \end{matrix} \quad (14.5, 21)
 \end{aligned}$$

(Total for Question 25 is 4 marks)

26 A new phone cost £679

The value of the phone decreases at a rate of 4% per year.

Work out the value of the phone at the end of 3 years.

$$\begin{aligned}
 100\% - 4\% \\
 = 96\%
 \end{aligned}$$

$$679 \times 0.96^3 = \pounds 600.74$$

$$\pounds 600.74$$

(Total for Question 26 is 3 marks)



- 27 In Spain, Sam pays 27 euros for 18 litres of petrol.
In Wales, Leo pays £40.80 for 8 gallons of the same type of petrol.

$$1 \text{ euro} = \text{£}0.85$$
$$4.5 \text{ litres} = 1 \text{ gallon}$$

Sam thinks that petrol is cheaper in Spain than in Wales.

Is Sam correct?

You must show how you get your answer.

$$27 \times 0.85 = 22.95$$

Spain £22.95 for 18 litres
 ÷ 18 ÷ 18
 £1.275 for 1 litre

Wales $8 \times 4.5 = 36 \text{ litres}$
 £40.80 for 36 litres
 ÷ 36 ÷ 36
 £1.13 for 1 litre

$$1.13 < 1.275$$

No. Petrol is cheaper in Wales.

(Total for Question 27 is 4 marks)



P 6 6 3 0 4 A 0 1 9 2 0

28 Solve the simultaneous equations

$$5x + 2y = 27 \quad \times 2$$

$$6x + 4y = 28$$

$$10x + 4y = 54$$

$$6x + 4y = 28$$

$$4x = 26$$

$$x = \underline{\underline{6.5}}$$

$$5(6.5) + 2y = 27$$

$$32.5 + 2y = 27$$

$$2y = -5.5$$

$$y = \underline{\underline{-2.75}}$$

$$x = \underline{\underline{6.5}}$$

$$y = \underline{\underline{-2.75}}$$

(Total for Question 28 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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