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)

Monday 3 June 2024

Morning (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 or B pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **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 ▶

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F:1/1/1/

P 7 6 9 2 4 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.
Start with the lowest number.

4 –3 7 2 –1

-3, -1, 2, 4, 7 (1)

.....

(Total for Question 1 is 1 mark)

2 Change 5000 millilitres to litres.

litres ×1000 millilitres ÷1000

5000 millilitres / 1000 = 5 litres (1)

5 ..... litres

(Total for Question 2 is 1 mark)

3 Write $\frac{31}{100}$ as a decimal.

31 ÷ 100

= 0.31 (1)

0.31

(Total for Question 3 is 1 mark)

4 Write down the multiple of 7 that is between 30 and 40

List down multiple of 7 :

7, 14, 21, 28, (35), 42

↖ between 30 and 40

35 (1)

(Total for Question 4 is 1 mark)

5 Complete the statement below to make it correct.

? × m = 2m

? = 2m / m

? = 2

2 (1) × $m = 2m$

(Total for Question 5 is 1 mark)

6 Ben sells houses.

The pictogram shows information about the number of houses Ben sold in each of the first three months of last year.

January	4 4 2
February	4 4 1
March	4 4 4
April	①
May	

Key: ☐ represents 4 houses

☐ : 2 houses

☐ : 1 house

(a) Write down the number of houses Ben sold in January.

4 + 4 + 2 = 10

10 ①

(1)

In April, Ben sold 11 houses.

(b) Show this information on the pictogram.

(1)

Ben sold a total of 60 houses in the first five months of last year.

(c) Work out the number of houses Ben sold in May.

Jan : 4 + 4 + 2 = 10

Feb : 4 + 4 + 1 = 9

Mar : 4 + 4 + 4 = 12 ①

Apr : 11

May : x

May : 60 − 10 − 9 − 12 − 11 ①

= 18 ①

18

(3)

(Total for Question 6 is 5 marks)

7 (a) Measure the length of this line.
Give your answer in centimetres.

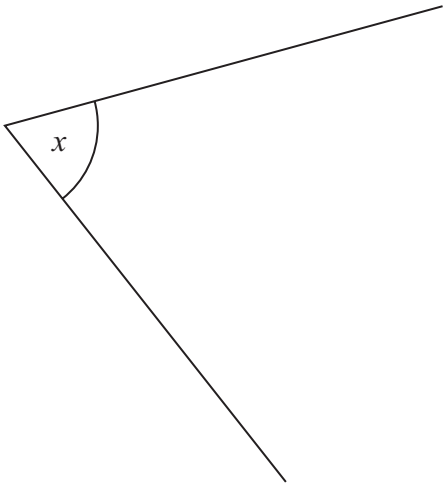
(measure with your ruler)

8.7 (1)

..... centimetres
(1)

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

(measure with your protractor)

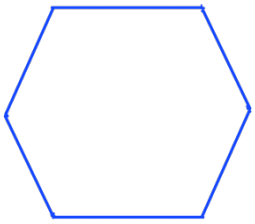


(1) 67 °

(1)

(c) In the space below, draw a hexagon.

Six sided polygon

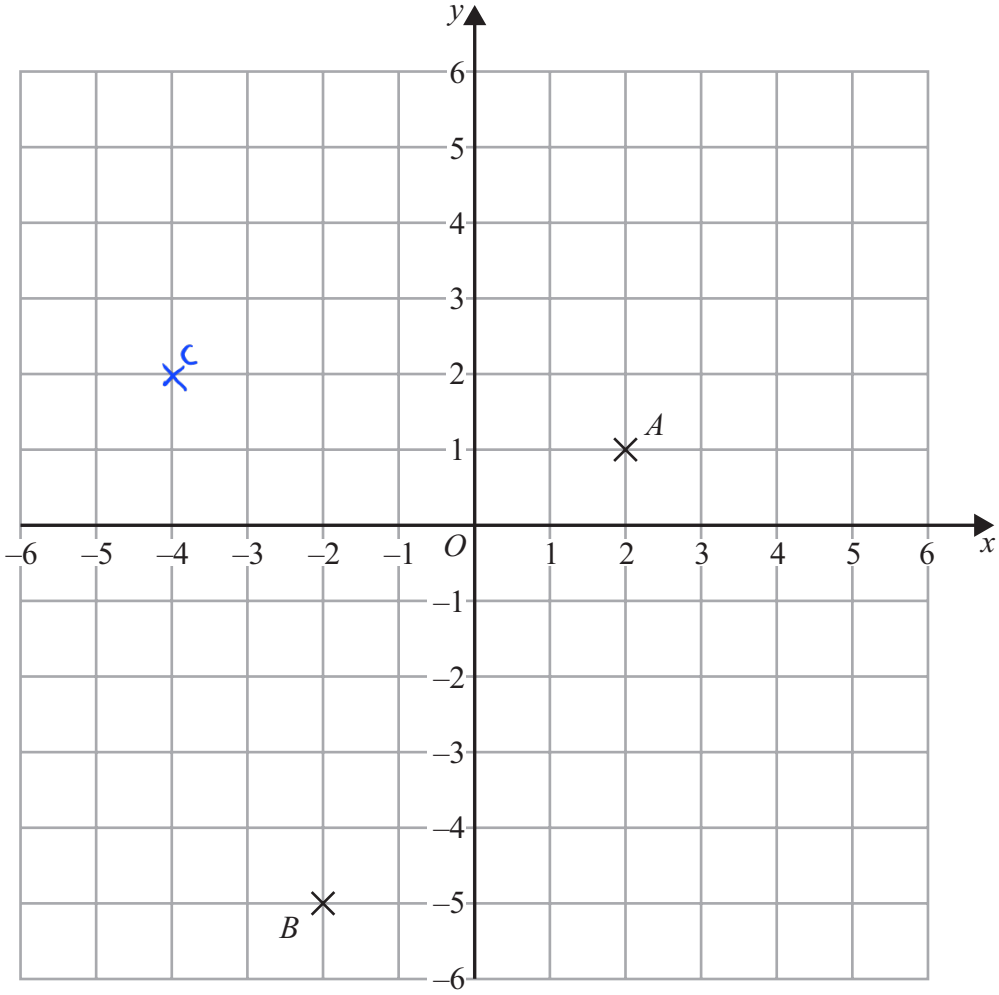


(1)

(1)

(Total for Question 7 is 3 marks)

8 The points A and B are shown on the grid.



(a) Write down the coordinates of the point A.

(2 ; 1) (1)

(b) Find the coordinates of the midpoint of AB.

A = (2, 1)

B = (−2, −5)

Midpoint AB:

$x = \left(\frac{2 + (-2)}{2}\right) = 0$ (1)

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

(0 ; −2) (1) (2)

(c) On the grid, mark with a cross (×) the point with coordinates (–4, 2)
Label this point C.

(1)

(Total for Question 8 is 4 marks)

9 Anil has a job as a driver.
He is paid for each mile he drives.
He is also paid expenses.

One week Anil writes down the distance readings from his car.

Start of week:	4	7	2	4	1	miles
End of week:	4	7	8	7	9	miles

For this week, Anil is paid 47p for each mile he drives.
He is also paid expenses of £80

Work out the total amount that Anil is paid.
Give your answer in pounds.

Distance Anil travels :

47879 - 47241 = 638 miles (1)

Amount Anil paid for fuel :

638 miles × 47 p = 29986 p (1)

29986 p ÷ 100 = £299.86 (1)

Total amount Anil paid :

£299.86 + £80 = 379.86 (1)

£ 379.86

(Total for Question 9 is 4 marks)

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

10 Anita throws a coin 3 times. → $2^3 = 8$ possibilities
Each time the coin can land on heads (H) or tails (T).

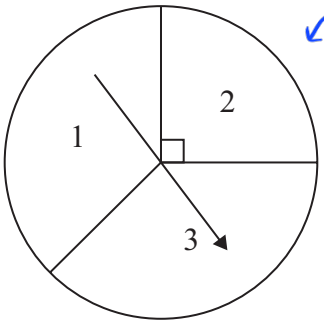
List all the possible outcomes.

(H)(H)(H), (H)(H)(T) (1), (H)(T)(H), (H)(T)(T), (T)(T)(T), (T)(T)(H),

(T)(H)(T), (T)(H)(H) (1)

(Total for Question 10 is 2 marks)

11 Majid has a spinner.



90° out of 360° ($\frac{1}{4}$)

Majid is going to spin the arrow.
The arrow can land on 1 or on 2 or on 3

Majid says,

> "The probability that the arrow will land on 2 is $\frac{1}{3}$ because the spinner has three sections."

Is Majid correct?
You must give a reason for your answer.

No, Majid is not correct. The probability on landing on 2 is $\frac{1}{4}$ because

section 2 only occupies $\frac{1}{4}$ of the spinner (1)

(Total for Question 11 is 1 mark)

12 Saira buys 24 bars of chocolate.

$\frac{2}{3}$ of the 24 bars are white chocolate.

The rest of the 24 bars are milk chocolate.

Each milk chocolate bar has a weight of 35 grams.

Work out the total weight of the milk chocolate bars that Saira buys.

Finding ratio of milk chocolate :

$1 - \frac{2}{3} = \frac{1}{3}$

Finding number of milk chocolate :

$\frac{1}{3} \times 24 = 8$ bars (1)

Finding total weight of milk chocolate :

$8 \times 35 = 280$ g (1)

(1)

280 grams

(Total for Question 12 is 3 marks)

13 (a) Simplify $2c \times 3d$

integers can be multiplied together

$2 \times c \times 3 \times d = 2 \times 3 \times c \times d$

$= 6 \times c \times d = 6cd$

6cd (1)

(1)

$T = x + 2y$

$x = 3$ and $y = -4$

(b) Work out the value of T.

$T = x + 2y$ → substitute values of x and y

$= 3 + 2(-4)$ multiply the terms in bracket (1)

$= 3 - 8$

$= -5$ (1)

$T =$ −5

(2)

(Total for Question 13 is 3 marks)

14 On Monday, Lizzie cycled 36 kilometres in 3 hours.

(a) Work out Lizzie's average speed.

speed = distance / time

speed = 36 km / 3 hours (1)

= 12 km/hour

12 (1) kilometres per hour

(2)

On Tuesday, Lizzie cycled 36 kilometres at an average speed of 16 kilometres per hour.

Lizzie says that the total time she cycled on Monday and Tuesday was less than 5 hours 20 minutes.

(b) Is Lizzie correct?
You must show how you get your answer.

time = distance / speed

= 36 / 16

= 2.25 hours (1) (on Tuesday)

2.25
16 | 36
32
40
32
80
80

5 hours 15 minutes
is less than 5 hours 20 minutes.
Yes, Lizzie is correct. (1)

Convert hours to minutes by multiplying 60

0.25 x 60 = 15 minutes

Hours on Tuesday = 2 hours 15 minutes

Hours on Monday = 3 hours

Total time on Monday and Tuesday: 5 hours 15 minutes (1)

(3)

(Total for Question 14 is 5 marks)

15 £3500 is invested in a bank for 6 years.
The bank pays **simple** interest at a rate of 2.5% per year.

Work out the total amount of simple interest paid.

Interest = 2.5%

Amount of interest paid per year = $\frac{2.5}{100} \times £3500$ (1)

$= £87.50$

Total interest paid = £87.50 × 6 → interest for 6 years

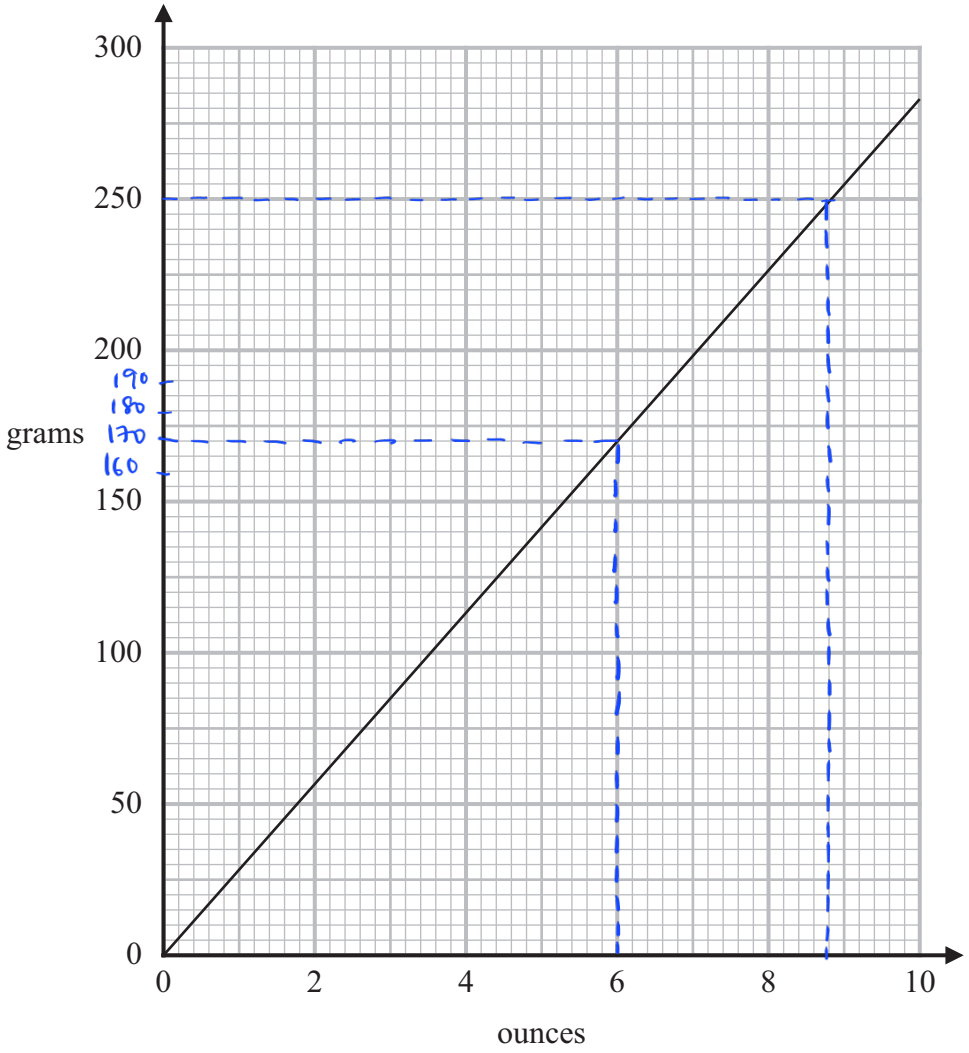
$= £525$ (1)

$$\begin{array}{r} {}^{2}{}^{1}2.5 \\ \times\ 35 \\ \hline 125 \\ 75 \\ \hline 87.5 \end{array}$$

£ 525

(Total for Question 15 is 2 marks)

16 You can use this graph to change between ounces and grams.



(a) Change 6 ounces to grams.

170 (1)

..... grams

(1)

(b) Change 1 kg to ounces.

1 kg = 1000 g 250 g x 4 = 1000 g (1)

Find how many ounces for 250 g.

250 g = 8.8 ounces

8.8 ounces x 4 = 35.2 ounces (1)

3 8.8
× 4
35.2

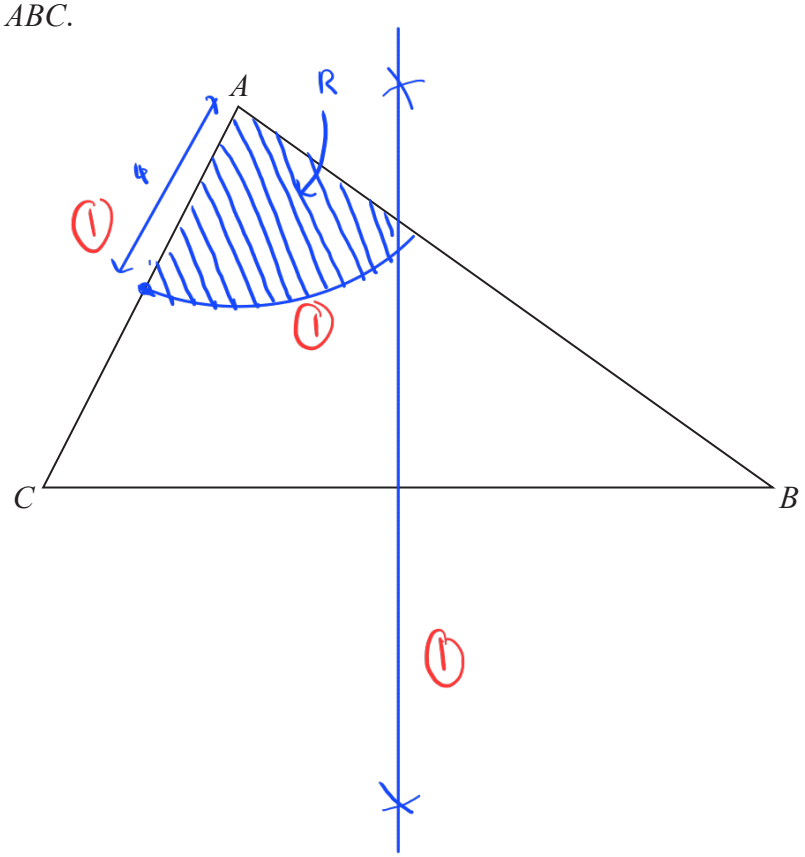
35.2

..... ounces

(2)

(Total for Question 16 is 3 marks)

17 Here is a triangle ABC.



The region **R** consists of all points inside the triangle that are

less than 4 cm from A
and closer to C than to B.

On the diagram show, by shading, the region **R**.

(Total for Question 17 is 3 marks)

18 Mrs Simpson organised a school trip for 66 children.

The total cost of the trip was £1800
The school paid 56% of the total cost.
The rest of the total cost was divided equally between the 66 children.

Work out how much money each child paid.

Finding the total cost covered by school :

$\frac{56}{100} \times £1800 = £1008$

Finding rest of the cost :

$£1800 - £1008 = £792$ (1)

Finding cost paid by each child :

$£792 \div 66 = £12$ (1) (1)

£ 12

(Total for Question 18 is 3 marks)

19 (a) Work out the value of $\dfrac{\sqrt{35.2 + 1.7^3}}{4.6^2 - 8.91}$

Write down all the numbers on your calculator display.

$= \dfrac{6.333482454}{12.25}$ (1)

$= 0.5170189759$ (1)

0.5170189759

(2)

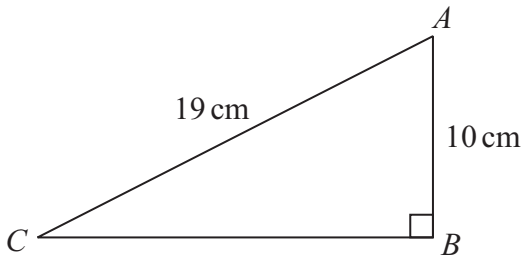
(b) Write your answer to part (a) correct to 2 significant figures.

0.52 (1)

(1)

(Total for Question 19 is 3 marks)

20 ABC is a right-angled triangle.



Work out the length of CB.
Give your answer correct to 3 significant figures.

By using Pythagoras Theorem :

$BC^2 = 19^2 - 10^2$ (1)

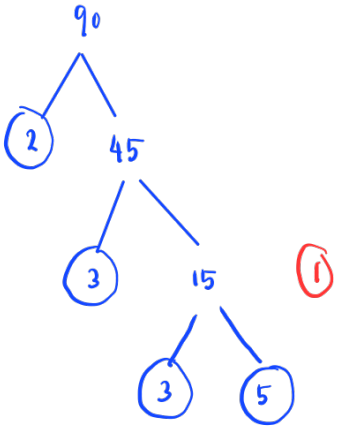
$BC = \sqrt{19^2 - 10^2}$

$= 16.2$ (3 s.f.) (1)

16.2 ..... cm

(Total for Question 20 is 2 marks)

21 (a) Write 90 as a product of its prime factors.



(1)

$2 \times 3 \times 3 \times 5 = 90$

(1)

$2 \times 3 \times 3 \times 5$

(2)

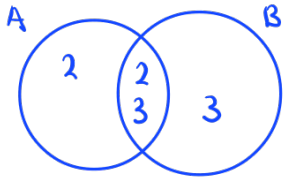
$A = 2^2 \times 3$

$B = 2 \times 3^2$

(b) Write down the lowest common multiple (LCM) of A and B.

$A = 2^2 \times 3$

$B = 2 \times 3^2$



LCM of A and B is the product of all numbers in the Venn diagram : $2 \times 2 \times 3 \times 3 = 36$

36 (1)

(1)

(Total for Question 21 is 3 marks)

22 The number of hours, H, that some machines take to make 5000 bottles is given by

$$H = \frac{72}{n}$$ where n is the number of machines.

On Monday, 6 machines made 5000 bottles.
On Tuesday, 9 machines made 5000 bottles.

The machines took more time to make the bottles on Monday than on Tuesday.

How much more time?

Monday : $H = \frac{72}{6} = 12$ hours (1)

Tuesday : $H = \frac{72}{9} = 8$ hours

12 hours − 8 hours = 4 hours (1)

4 hours

(Total for Question 22 is 2 marks)

23 There are only red discs, blue discs and yellow discs in a bag.
There are 24 yellow discs in the bag.

Mel is going to take at random a disc from the bag.

The probability that the disc will be yellow is 0.16

the number of red discs : the number of blue discs = 5 : 4

Work out the number of red discs in the bag.

Finding total number of disc in the bag :

Total number of discs $\times$ 0.19 = 24

$= \frac{24}{0.19} = 150$ (1)

Finding total number of red + blue disc :

150 - 24 = 126

Number of red discs : $\frac{5}{5+4} \times 126$ (1)

$= \frac{5}{9} \times 126$ (1)

= 70 (1)

70

(Total for Question 23 is 4 marks)

24 (a) Complete the table of values for $y = x^2 - x$

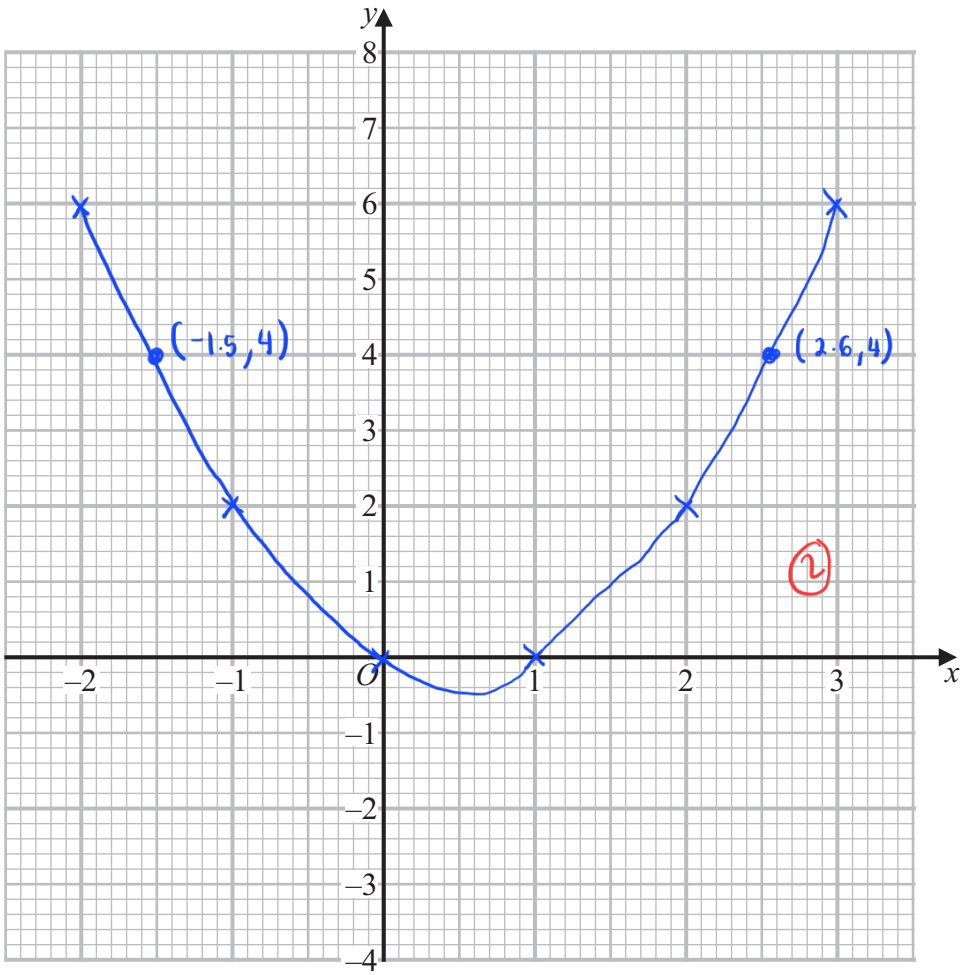
When $x = -1$: $y = (-1)^2 - (-1) = 2$
$x = 1$: $y = (1)^2 - 1 = 0$
$x = 3$: $y = (3)^2 - 3 = 6$

x	–2	–1	0	1	2	3
y	6	2	0	0	2	6

(2)

(2)

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



(2)

(c) Use your graph to find estimates for the solutions of the equation $x^2 - x = 4$

Find the x-coordinate when $y = 4$

-1.5 , 2.6 (2)

(2)

(Total for Question 24 is 6 marks)

25 Andy, Luke and Tina share some sweets in the ratio 1 : 6 : 14

Tina gives $\frac{3}{7}$ of her sweets to Andy.

Tina then gives $12\frac{1}{2}\%$ of the rest of her sweets to Luke.

Tina says,

"Now all three of us have the same number of sweets."

Is Tina correct?
You must show how you get your answer.

Initially : Andy : Luke : Tina

1 : 6 : 14

When Tina gives $\frac{3}{7}$ of her sweets to Andy :

$\frac{3}{7_1} \times 14^2 = 6$ (1) : Andy now has = 1 + 6 = 7 (1)
Tina now has = 14 - 6 = 8

Now : Andy : Luke : Tina

7 : 6 : 8

when Tina then gives 12.5% of the rest of her sweets to Luke :

$\frac{12.5}{100} \times 8 = 1$: Tina now has = 8 - 1 = 7 (1)
Luke now has = 6 + 1 = 7

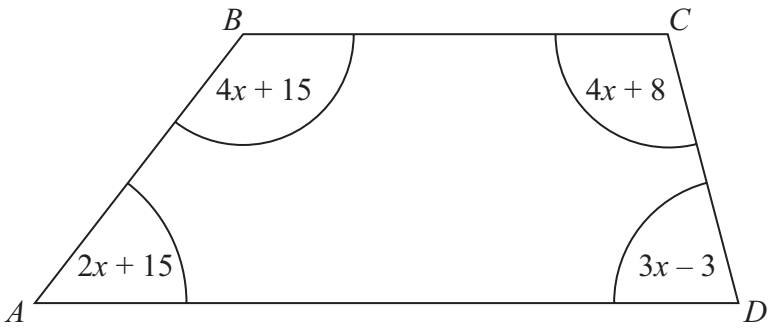
Now : Andy : Luke : Tina

7 : 7 : 7

Yes. Andy, Luke, and Tina now has the same amount of sweets in the ratio of 7 : 7 : 7. (1)

(Total for Question 25 is 4 marks)

26 *ABCD* is a quadrilateral.



All angles are measured in degrees.

Show that *ABCD* is a trapezium.

Total angle = 360°

$(2x + 15) + (4x + 15) + (4x + 8) + (3x - 3) = 360°$ (1)

$13x + 35 = 360°$

$13x = 325°$ (1)

$x = 25°$ (1)

∴ C+D should be equal to 180° since co-interior angles sum up to 180°

$4x + 8 + 3x - 3 : 4(25) + 8 + 3(25) - 3$

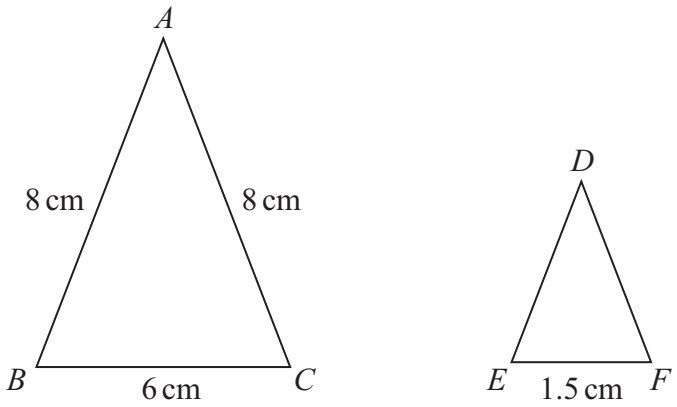
$= 100 + 8 + 75 - 3$

$= 180°$ (1) (shown)

∴ since C+D = 180°, BC and AD are parallel which is why ABCD is a trapezium.

(Total for Question 26 is 4 marks)

27 *ABC* and *DEF* are two similar isosceles triangles.



$DE = DF$

Work out the length of DE.

$\frac{EF}{BC} = \frac{DE}{AB}$

$\frac{1.5}{6} = \frac{DE}{8}$

$DE = \frac{1.5^{1}}{6_{4}} \times 8$ (1)

$= 2$ (1)

2 ..... cm

(Total for Question 27 is 2 marks)

28 The table shows information about the weights of 120 oranges.

Weight (w grams)	Frequency	Cumulative Frequency
$50 < w \leqslant 100$	34	34
$100 < w \leqslant 150$	29	63
$150 < w \leqslant 200$	27	90
$200 < w \leqslant 250$	19	109
$250 < w \leqslant 300$	11	120

(a) Find the class interval that contains the median.

Median : $\left(\frac{120}{2}\right)$ th term = 60 th term ← located in $100 < w \leq 150$ class interval

$100 < w \leq 150$ (1)

.....

(1)

(b) Calculate an estimate for the mean weight of the 120 oranges.
Give your answer correct to 3 significant figures.

$$\text{Mean} = \frac{(75 \times 34) + (125 \times 29) + (175 \times 27) + (225 \times 19) + (275 \times 11)}{120} \quad (1) \quad (1)$$

$= 151.67$ g

≈ 152 g (3 s.f.) (1)

152

..... grams

(3)

(Total for Question 28 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

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