

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)**

**Wednesday 7 June 2023**

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 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  $\pi$  button, take the value of  $\pi$  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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P 7 5 1 4 9 A 0 1 2 4



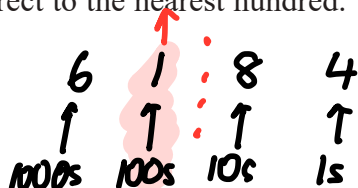
Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

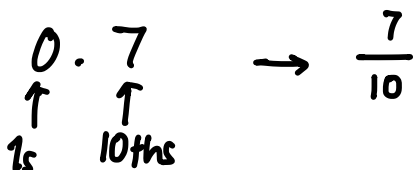
1 Write 6184 correct to the nearest hundred.



6200

(Total for Question 1 is 1 mark)

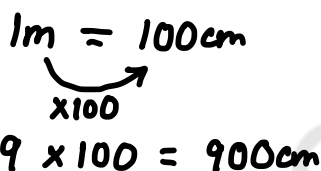
2 Write 0.7 as a fraction.



$\frac{7}{10}$

(Total for Question 2 is 1 mark)

3 Change 9 metres into centimetres.



900

centimetres

(Total for Question 3 is 1 mark)

4 Simplify  $3 \times 4t$

$$4t + 4t + 4t = 12t$$

12t

(Total for Question 4 is 1 mark)

5 Here is a list of numbers.

20    40    60    80    (100)

One of these numbers is a multiple of 25

Which number?

L 25 times table

25, 50, 75, (100), 125...

100

(Total for Question 5 is 1 mark)

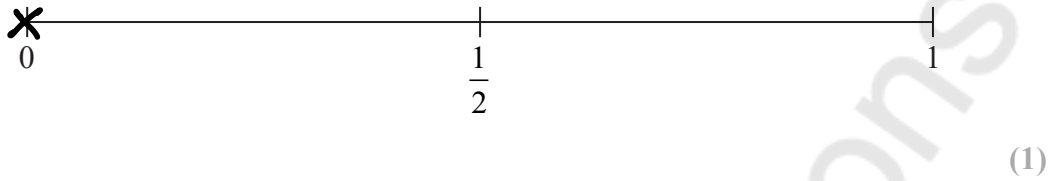


6 Shari has a fair ordinary dice.

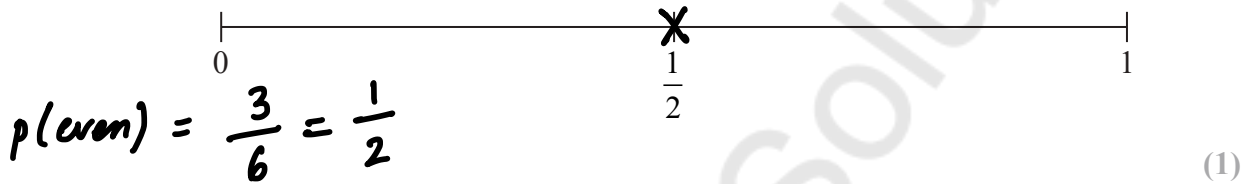
1 2 3 4 5 6

She rolls the dice once.

(a) On the probability scale, mark with a cross (×) the probability that Shari gets the number 7



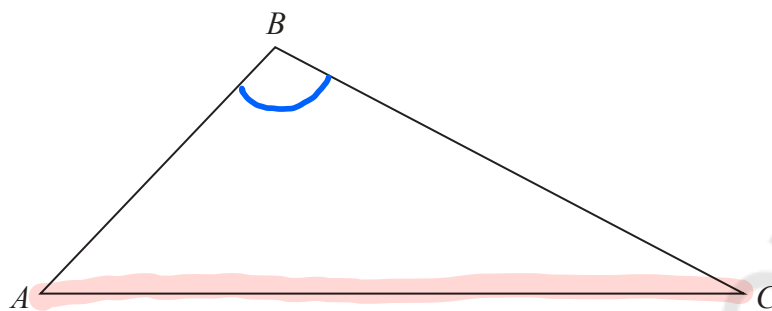
(b) On the probability scale, mark with a cross (×) the probability that Shari gets an even number.



(Total for Question 6 is 2 marks)



7 Here is a triangle.  
The triangle is accurately drawn.



(a) Measure the length of  $AC$ .

*Ruler*

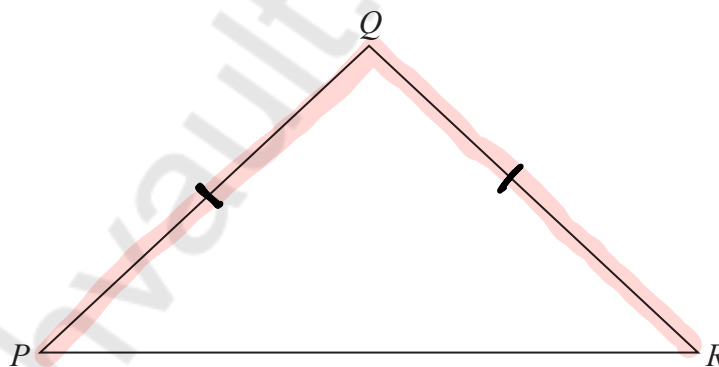
*9.1 to 9.5* cm  
(1)

(b) Measure the size of angle  $B$ .

*Protractor*

*104 to 108* °  
(1)

Here is a different triangle.



$QP = QR$

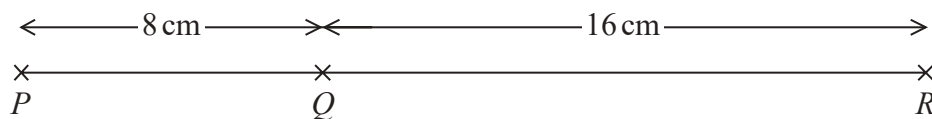
(c) Write down the mathematical name of this triangle.

*Isosceles*  
(1)

(Total for Question 7 is 3 marks)



- 8 The diagram shows three motorway service stations  $P$ ,  $Q$  and  $R$  on a map.



The map has a scale of  $1 \text{ cm} = 4 \text{ km}$ .

Work out the real distance from  $P$  to  $R$ .

$$\begin{aligned} P \text{ to } R &= 8 \text{ cm} + 16 \text{ cm} \\ &= 24 \text{ cm} \end{aligned}$$

$$\begin{aligned} 1 \text{ cm} &= 4 \text{ km} \\ &\quad \swarrow \searrow \\ &\quad \quad \times 4 \end{aligned}$$

$$\begin{aligned} P \text{ to } R &= 24 \text{ cm} \times 4 \\ &= 96 \text{ km} \end{aligned} \quad \dots\dots\dots 96 \text{ km}$$

(Total for Question 8 is 3 marks)

- 9 Here are the first five terms of a sequence.



- (a) Write down the next term of this sequence.

..... 28  
(1)

- (b) Write down the ratio of the second term to the fourth term.  
Give your ratio in its simplest form.

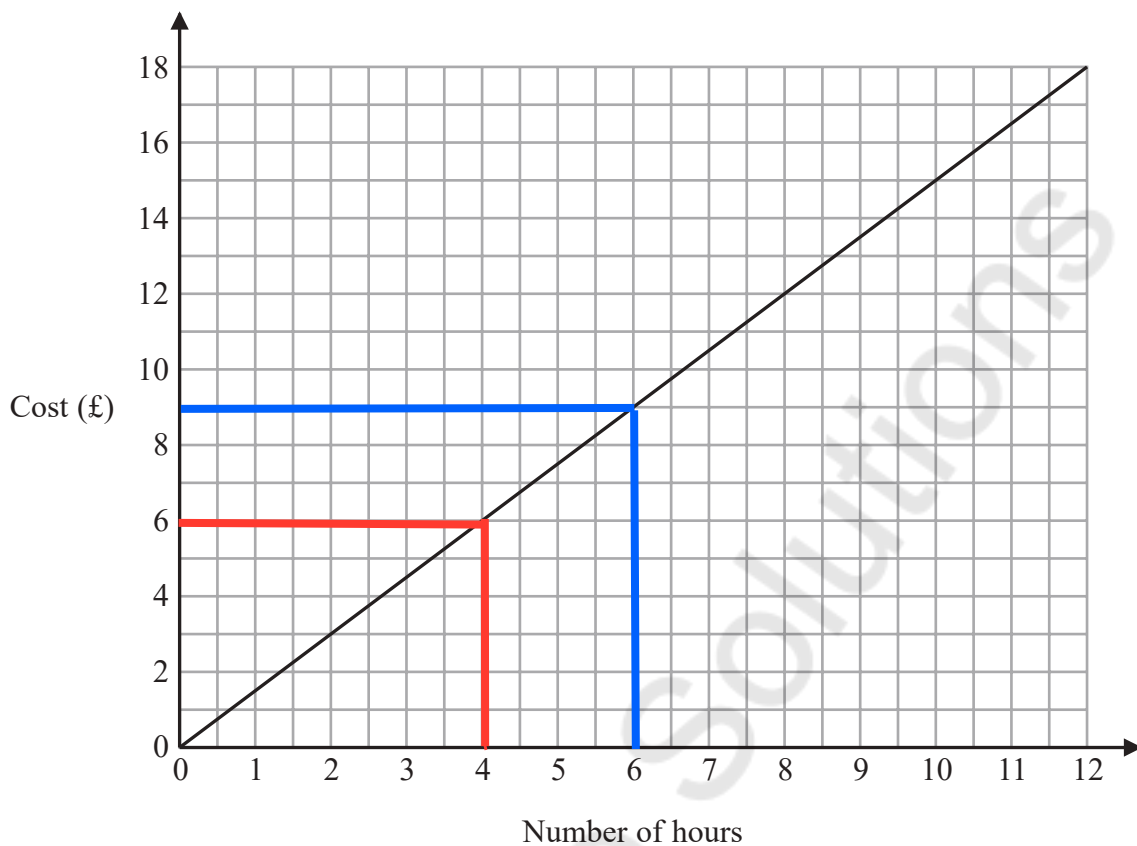
$$\begin{aligned} &8 : 18 \\ \div 2 \quad \downarrow & \quad \downarrow \quad \div 2 \\ &4 : 9 \end{aligned}$$

..... 4:9  
(2)

(Total for Question 9 is 3 marks)



10 This graph can be used to find the cost of parking a car in a car park for up to 12 hours.



(a) Use the graph to find the cost of parking a car for 4 hours.

£ 6 ..... (1)

Justin drives into the car park at 08 00 in the morning.  
When he drives out of the car park he has to pay £9

(b) At what time does Justin drive out of the car park?

$08\ 00 + 6h = 14\ 00 \text{ or } 2pm$

14:00 ..... (3)

(Total for Question 10 is 4 marks)



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11 The table shows information about the weights of the people in a hotel lift.

Weight	Number of people	Total weight
40 kg	1	$1 \times 40 = 40 \text{ kg}$
50 kg	2	$2 \times 50 = 100 \text{ kg}$
60 kg	4	$4 \times 60 = 240 \text{ kg}$
70 kg	5	$5 \times 70 = 350 \text{ kg}$
80 kg	3	$3 \times 80 = 240 \text{ kg}$
90 kg	1	$1 \times 90 = 90 \text{ kg}$

Show that the total weight of the people in the lift is less than 1200 kg.

$$40 + 100 + 240 + 350 + 240 + 90 = 1060 \text{ kg}$$

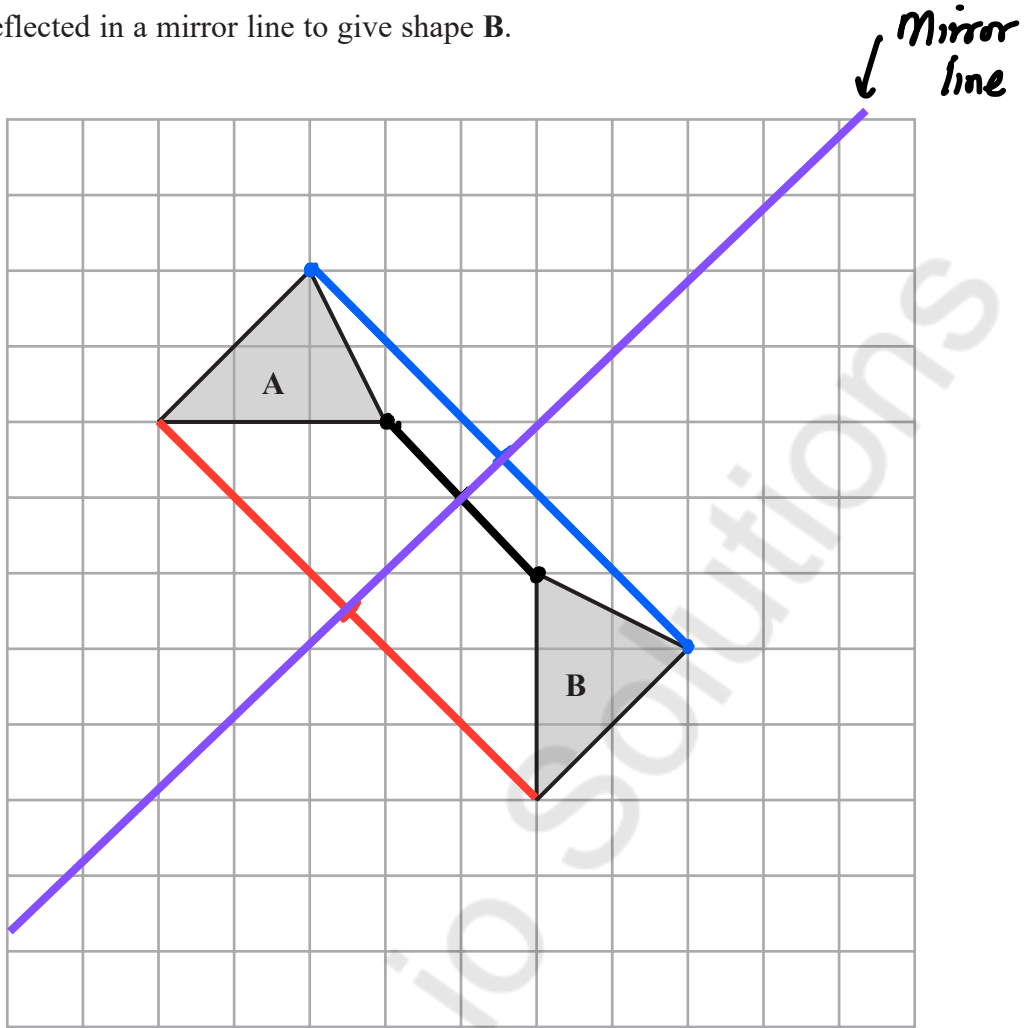
$$1060 \text{ kg} < 1200 \text{ kg}$$

(Total for Question 11 is 3 marks)



P 7 5 1 4 9 A 0 7 2 4

12 Shape A is reflected in a mirror line to give shape B.



(a) On the grid, draw the mirror line.

(1)

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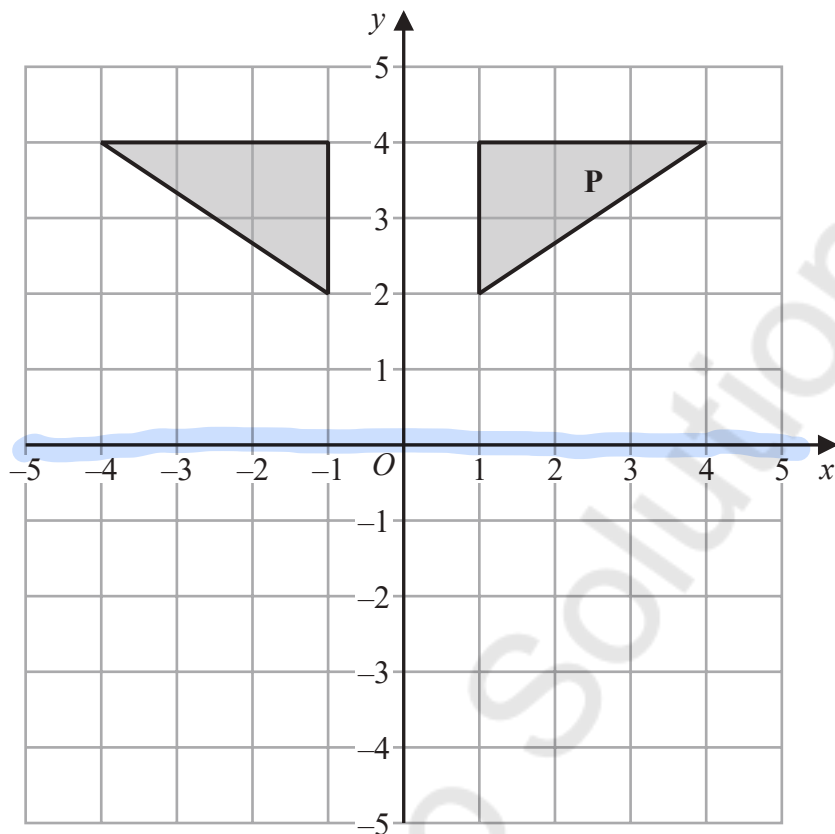


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(b) Alex is asked to reflect shape **P** in the  $x$ -axis.  
Here is the diagram Alex draws.



Explain the mistake Alex has made.

*Alex reflected shape P in the y-axis*

(1)

(Total for Question 12 is 2 marks)



P 7 5 1 4 9 A 0 9 2 4

13 There are 50 teachers in a school.

This is  $\frac{1}{16}$  of the total number of people in the school.

$$1 = \frac{16}{16}$$

Work out the total number of people in the school.

$$\begin{array}{l} \frac{1}{16} = 50 \\ \times 16 \quad \downarrow \quad \times 16 \\ \frac{16}{16} = 800 \end{array}$$

800

(Total for Question 13 is 2 marks)

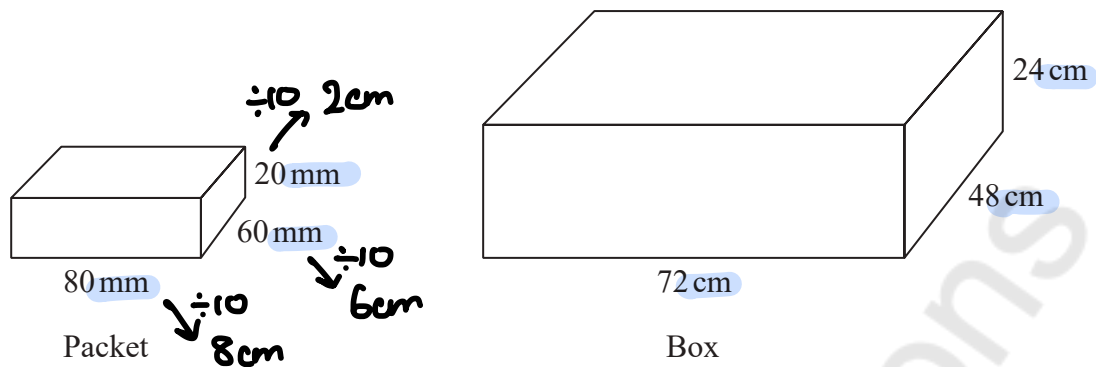
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14 Packets of sweets are put into boxes.



Each packet is a cuboid, 80 mm by 60 mm by 20 mm.

Each box is a cuboid, 72 cm by 48 cm by 24 cm.

Work out the greatest number of packets that can be put into each box.

Box

$$\begin{aligned} V &= l \times w \times h \\ &= 72 \times 48 \times 24 \\ &= 82,944 \text{ cm}^3 \end{aligned}$$

Numbers of packets

$$82,944 \div 96 = 864$$

Packet

$$10 \text{ mm} = 1 \text{ cm}$$

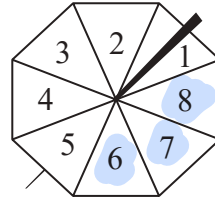
$$\div 10$$

$$\begin{aligned} V &= l \times w \times h \\ &= 8 \times 6 \times 2 \\ &= 96 \text{ cm}^3 \end{aligned}$$

864

(Total for Question 14 is 4 marks)

15 Here is a fair ordinary dice and a fair 8-sided spinner.



Charlie throws the dice once and spins the spinner once.

Is Charlie more likely to get

a number less than 3 on the dice  
or a number greater than 5 on the spinner?

You must show all your working.

Dice

$$\begin{aligned} & 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ p(< 3) &= \frac{2}{6} \\ &= \frac{1}{3} \\ &= 0.\dot{3} \text{ or } 0.333\dots \end{aligned}$$

Spinner

$$\begin{aligned} p(> 5) &= \frac{3}{8} \\ &= 0.375 \end{aligned}$$

$$0.375 > 0.333\dots$$

Spinner.

(Total for Question 15 is 3 marks)

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16 Paulo drives at an average speed of 56 km/h for 1 hour 45 minutes.

Work out the distance Paulo drives.

D  
S T

$$S = 56 \text{ km/h}$$

$$T = 1\text{h} + 45 \text{ minutes}$$

$$60 \text{ mins} = 1\text{h}$$

$$\underbrace{\hspace{2cm}}_{\div 60} = 0.75\text{h}$$

$$\xrightarrow{\div 60}$$

$$D = S \times T$$

$$= 1\text{h} + 0.75\text{h}$$

$$= 1.75\text{h}$$

$$D = 56 \times 1.75$$

$$= 98 \text{ km}$$

..... 98 km

(Total for Question 16 is 3 marks)

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P 7 5 1 4 9 A 0 1 3 2 4



18 Asha buys 180 cans of cola.

The cans are sold in packs.  
There are 12 cans in each pack.  
Each pack costs £3

(a) Work out the total cost of the cola Asha buys.

$$\text{Packs : } 180 \div 12 = 15$$

$$\text{Total Cost : } 15 \times \text{£}3 = \text{£}45$$

£ 45  
(3)

Ethan buys a box of 24 cans of lemonade for £7  
There are 330 ml of lemonade in each can.

(b) Work out the cost of 100 ml of lemonade.  
Give your answer correct to the nearest penny.

$$\text{£}1 = 100\text{p}$$

↘  
x100

$$\text{£}7 \times 100 = 700\text{p}$$

$$\begin{array}{l} \div 24 \left\{ \begin{array}{l} 24 \text{ cans} = 700\text{p} \\ 1 \text{ can} = 29.1\dot{6}\text{p} \end{array} \right. \div 24 \end{array}$$

$$\begin{array}{l} \div 3.3 \left\{ \begin{array}{l} 330\text{ml} = 29.1\dot{6}\text{p} \\ 100\text{ml} = 8.8\dot{3}\text{p} \end{array} \right. \div 3.3 \\ \approx 9\text{p} \end{array}$$

..... 9 p  
(3)

(Total for Question 18 is 6 marks)



19 240 people work at a factory.

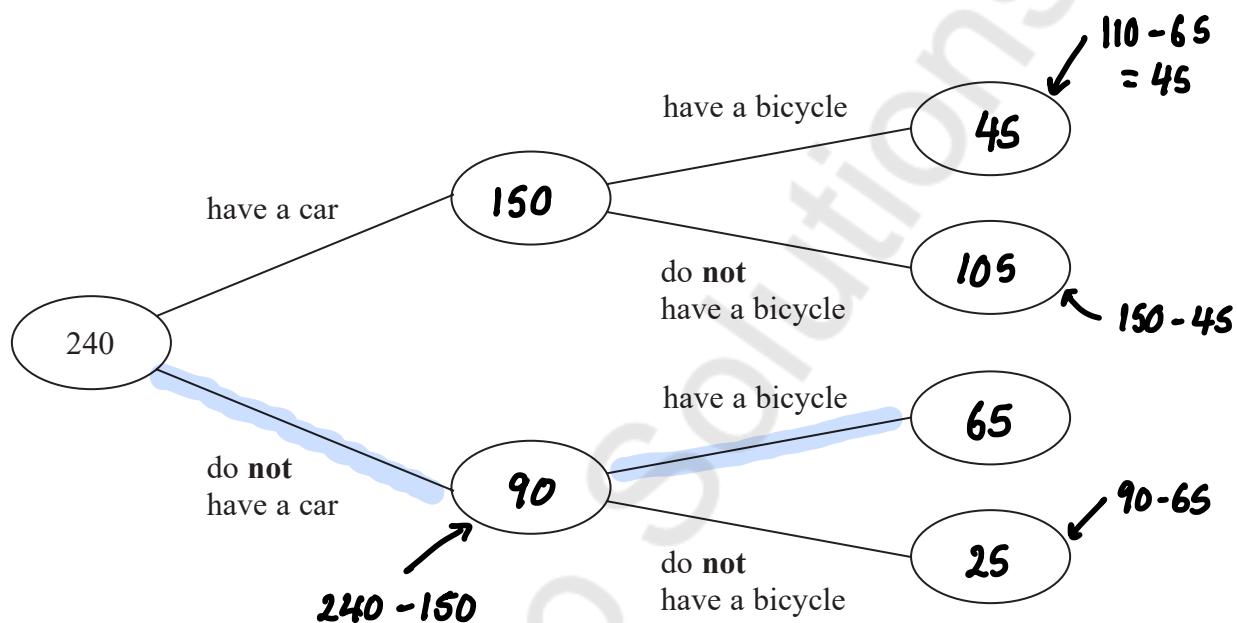
Of these people

150 have a car

110 have a bicycle

65 of the people who have a bicycle do **not** have a car.

(a) Use this information to complete the frequency tree.



(3)

(b) What percentage of the 150 people who have a car also have a bicycle?

$$\frac{45}{150} \times 100 = 30$$

..... 30 %  
(2)

(Total for Question 19 is 5 marks)



20 (a) Work out the value of  $\frac{25 - \sqrt{43.87}}{6 + 2.1^2}$   $\swarrow \div$

Write down all the figures on your calculator display.

$$\frac{\square}{\square} \quad 25 - \sqrt{\square} \quad 43.87 \quad \downarrow \quad 6 + 2.1 \square^2$$

1.76527923

(2)

(b) Work out the value of the reciprocal of 0.625

$$\frac{5}{8} \curvearrowright \frac{8}{5} = 1.6$$

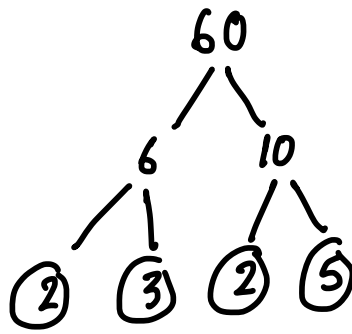
1.6

(1)

(Total for Question 20 is 3 marks)



21 Write 60 as a product of its prime factors.



$$60 = 2 \times 2 \times 3 \times 5$$

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

(Total for Question 21 is 2 marks)

22 There are 48 counters in a bag.  
There are only red counters and blue counters in the bag.

$$\text{number of red counters : number of blue counters} = 1 : 2$$

Helen has to work out how many red counters are in the bag.

3 parts

She says,

“There are 24 red counters in the bag because 1 is half of 2 and 24 is half of 48”

Is Helen correct?

You must give a reason for your answer.

No.  $\frac{1}{3}$  of the counters are red not  $\frac{1}{2}$

(Total for Question 22 is 1 mark)



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23  $-2 \leq n < 5$

$n$  is an integer.

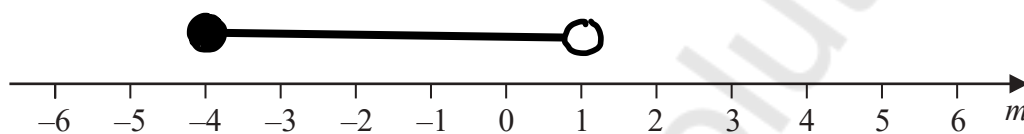
(a) Write down the greatest possible value of  $n$ .

4

(1)

(b) On the number line below, show the inequality  $-4 \leq m < 1$

●  $\leq$   $\geq$   
○  $<$   $>$



(2)

(c) Solve  $\frac{2}{5}g - 4 < 6$

+4 +4

$\div \frac{2}{5} \rightarrow \frac{2}{5}g < 10$

x5 x5

$2g < 50$

$\div 2 \quad \div 2$

$g < 25$

$g < 25$

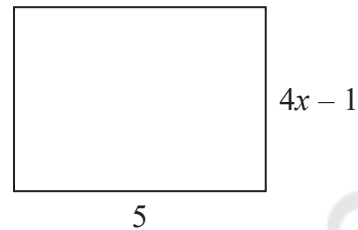
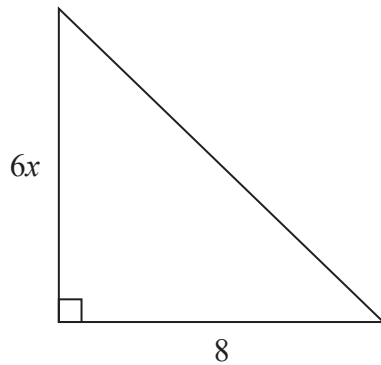
(3)

(Total for Question 23 is 6 marks)



P 7 5 1 4 9 A 0 1 9 2 4

24 Here is a triangle and a rectangle.



All measurements are in centimetres.

The area of the triangle is  $10 \text{ cm}^2$  greater than the area of the rectangle.

Work out the value of  $x$ .

$$\begin{aligned}\text{Area of rectangle} &= l \times w \\ &= 5 \times (4x - 1) \\ &= 20x - 5\end{aligned}$$

$$\begin{aligned}\text{Area of triangle} &= \frac{1}{2}bh \\ &= \frac{1}{2} \times 8 \times 6x \\ &= \frac{1}{2} \times 48x \\ &= 24x\end{aligned}$$

$$20x - 5 + 10 = 24x$$

$$20x + 5 = 24x$$

$$\begin{array}{r} - 20x \qquad - 20x \\ \hline 5 = 4x \end{array}$$

$$\begin{array}{r} 5 = 4x \\ \div 4 \qquad \div 4 \\ \hline \frac{5}{4} = x \end{array}$$

$$\frac{5}{4} = x$$

$$1.25 = x$$

$$x = 1.25$$

(Total for Question 24 is 4 marks)



- 25 Last year a family recycled 800 kg of household waste.  
57% of this waste was paper and glass.

weight of paper recycled : weight of glass recycled = 12 : 7

Calculate the weight of glass the family recycled.

$$57\% \xrightarrow{\div 100} 0.57$$

$$0.57 \times 800 \text{ kg} = 456 \text{ kg paper + glass}$$

$$\begin{array}{l} W : G \\ 12 : 7 \end{array} \quad \text{Total} = 12 + 7 = 19 \text{ parts}$$

$$456 \text{ kg} \div 19 = 24 \text{ kg}$$

$$24 \text{ kg} \times 7 = 168 \text{ kg glass}$$

..... 168 ..... kg

(Total for Question 25 is 3 marks)



26 A number,  $d$ , is rounded to 1 decimal place.

The result is 12.7

$$\hookrightarrow \text{nearest tenth} = \frac{1}{10} = 0.1 \text{ (degree of accuracy)}$$

Complete the error interval for  $d$ .

$$0.1 \div 2 = 0.05$$

$$12.7 + 0.05 = 12.75$$

$$12.7 - 0.05 = 12.65$$

$$\dots\dots 12.65 \leq d < 12.75 \dots\dots$$

(Total for Question 26 is 2 marks)

27 Tamsin buys a house with a value of £150 000

The value of Tamsin's house increases by 4% each year.

Rachel buys a house with a value of £160 000

The value of Rachel's house increases by 1.5% each year.

At the end of 2 years, whose house has the greater value?

You must show how you get your answer.

$$\text{Final amount} = \text{initial} \times \text{multiplier}^n \quad \swarrow \text{no. of years}$$

Tamsin

$$\text{Multiplier: } 100\% + 4\% = 104\% \xrightarrow{\div 100} 1.04$$

$$\text{Final} = 150,000 \times 1.04^2 = \underline{\underline{£162,240}}$$

Rachel

$$\text{Multiplier: } 100\% + 1.5\% = 101.5\% \xrightarrow{\div 100} 1.015$$

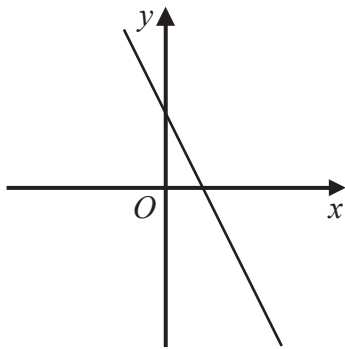
$$\text{Final} = 160,000 \times 1.015^2 = \underline{\underline{£164,836}}$$

$$\text{Rachel's } 164,836 > 162,240$$

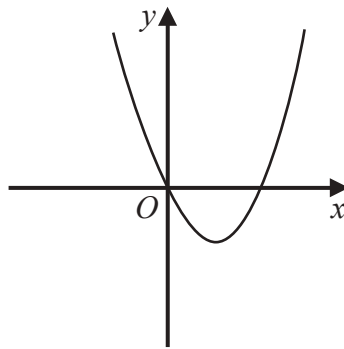
(Total for Question 27 is 4 marks)



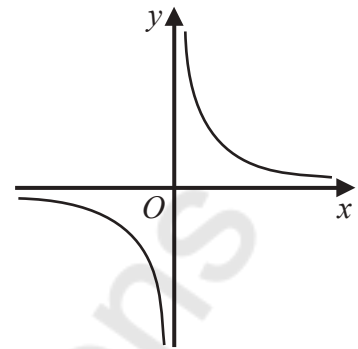
28 Here are five graphs.



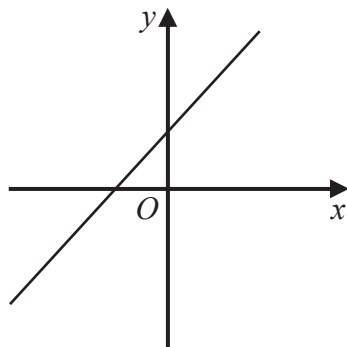
A



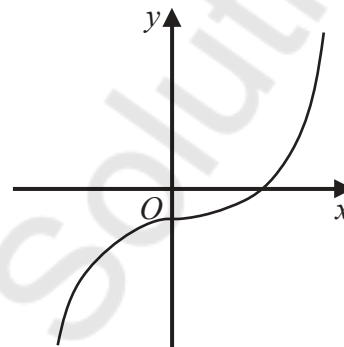
B



C








D



E

The table shows the equations of these graphs.

Quadratic   
 Linear   
 Cubic   
 Reciprocal   
 Linear 

Equation	Graph
$y = x^2 - 4x$	<b>B</b>
$y = x + 3$	<b>D</b>
$y = x^3 - 2$	<b>E</b>
$y = \frac{1}{x}$	<b>C</b>
$y = 5 - 2x$	<b>A</b>

Match the letter of each graph with its equation.

(Total for Question 28 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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