Paper 3 Revision F

Key topics to practice for 11th June

USE A CALCULATOR,

FIND A CALCULATOR,

USE A CALCULATOR

All the topics listed below are likely to appear in some form in paper 3.

Scan the QR Code for solutions

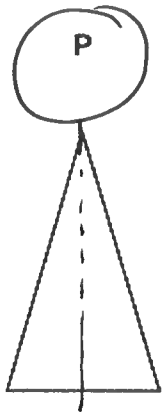
Very Likely topics

Symmetry	**Perimeter**	**Listing Outcomes**	**Venn diagrams**
Use of Calculator	**Speed, Distance, Time**	**Transformations**	**Draw/use straight line graphs**
Pie Charts			

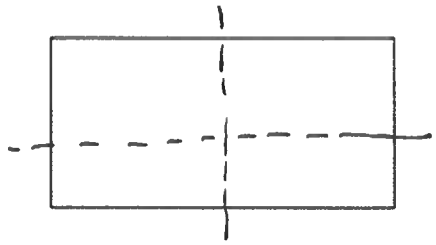
SYMMETRY

Q1. Circle the letter of the shape that has **exactly one** line of symmetry.

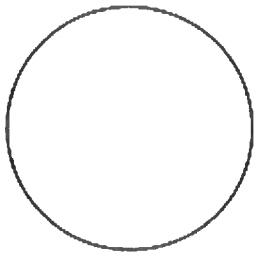
P



Q

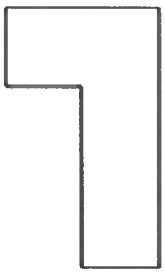


R



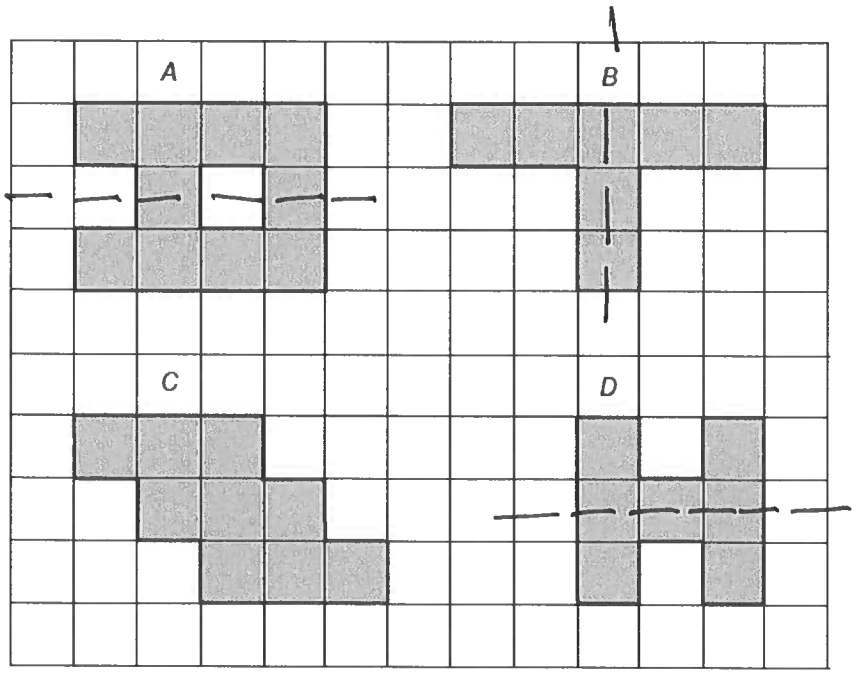
infinity

S



(Total 1 mark)

Q2. Here are four shapes.



Circle your answers for each part.

(a) Which of these shapes have line symmetry?

A B C D

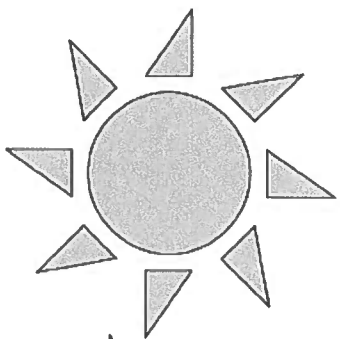
(2)

(b) Which of these shapes have rotational symmetry of order 2?

A B C D

(2)
(Total 4 marks)

Q3. Circle the order of rotational symmetry of this drawing.



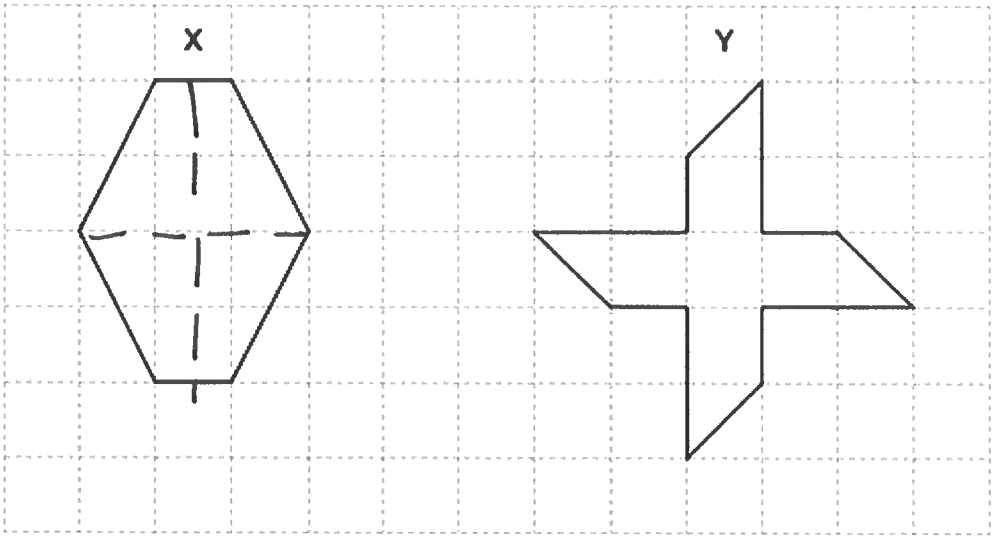
0 2 4 8

turn the shape one full turn there are 8 positions where this fits on top of itself exactly

(Total 1 mark)

Q4.

Shapes X and Y are shown on a centimetre grid.



(a) Circle the name of shape **X**. 6 SIDES

pentagon hexagon octagon decagon

(1)

(b) Give a reason why shape **Y** is **not** a regular polygon.

all sides are not the same length

(1)

(c) Complete these statements.

The number of lines of symmetry of shape **X** is 2

The order of rotational symmetry of shape **Y** is 4

(2)

(Total 4 marks)

Q5.

Which shape **must** have rotational symmetry?

Circle your answer.

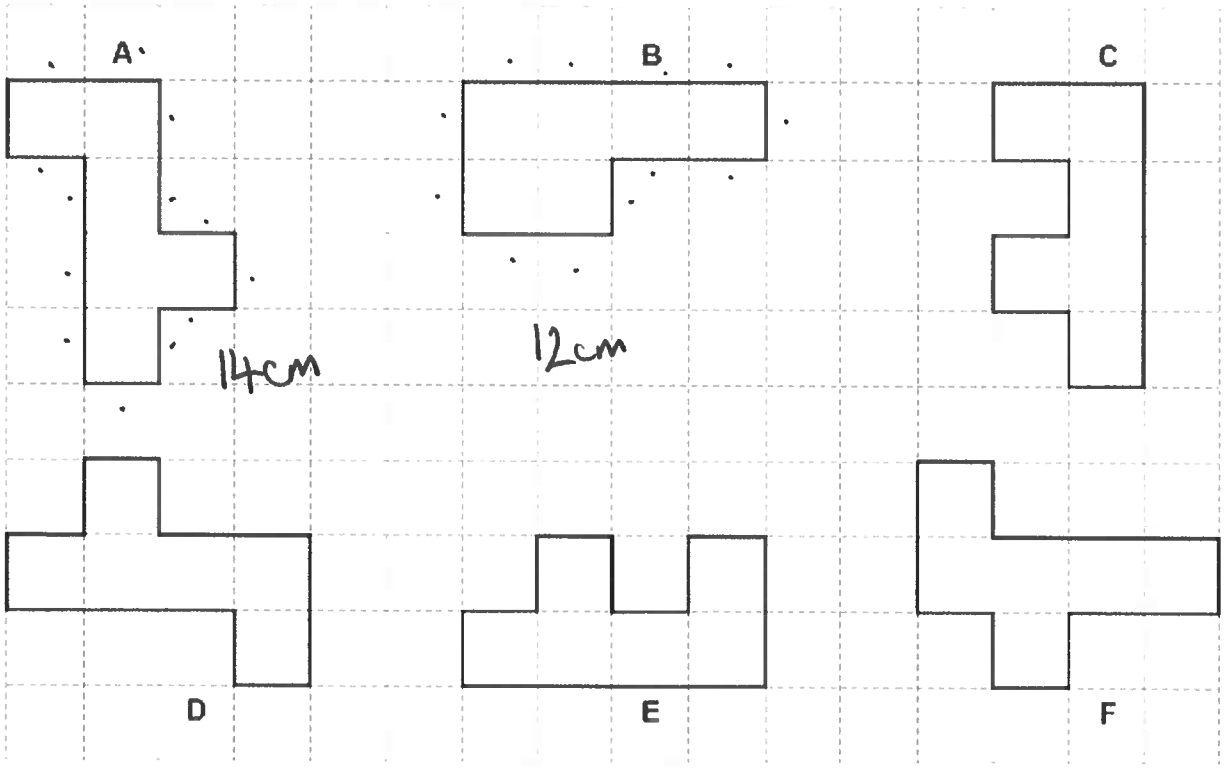
isosceles triangle trapezium kite parallelogram

(Total 1 mark)

PERIMETER

Q6. Here are some shapes.

Each shape has an area of six square centimetres.



(a) Which has the bigger perimeter, shape **A** or shape **B**?

You **must** show the lengths of both perimeters.

A has perimeter of 14 cm

B has perimeter of 12 cm

Answer _____

(2)

(b) Which shape is congruent to shape **A**?

Congruent: Same shape + size but can be rotated or reflected

Answer D

(1)

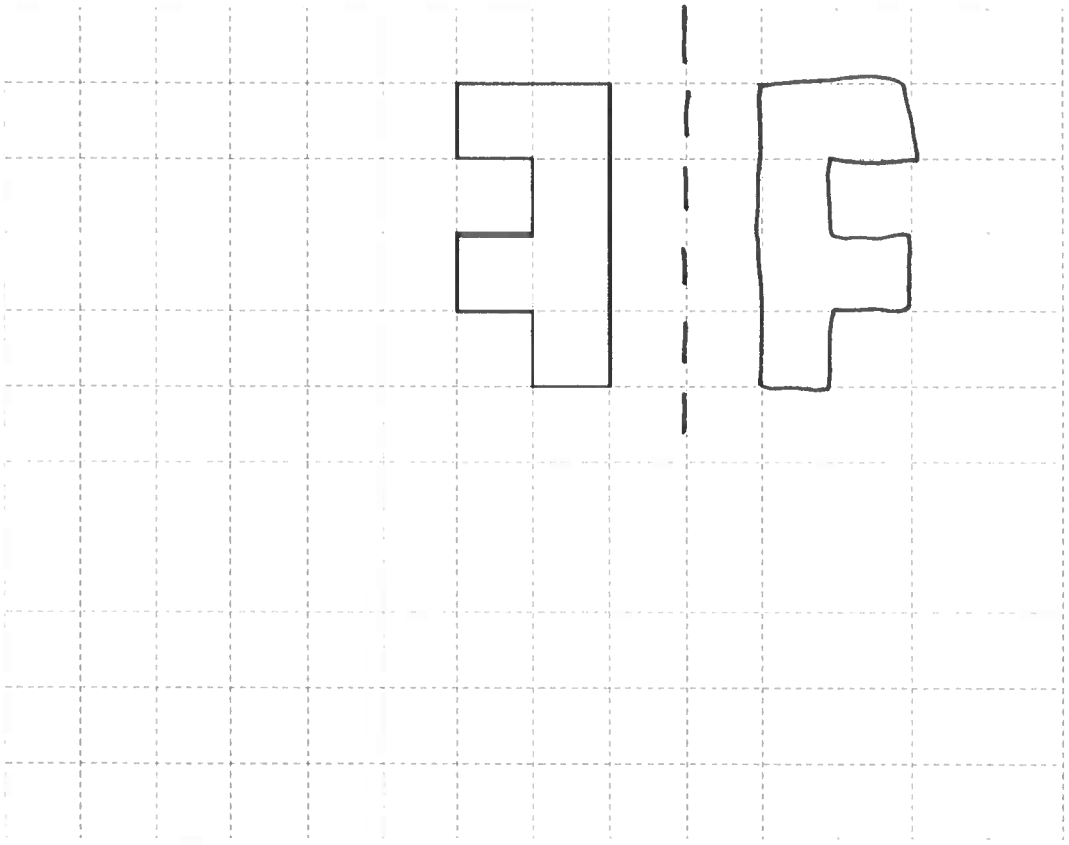
(c) Which **two** shapes fit together to make a rectangle?

Answer C and E

(1)

(d) On this grid draw a reflection of shape **C**.

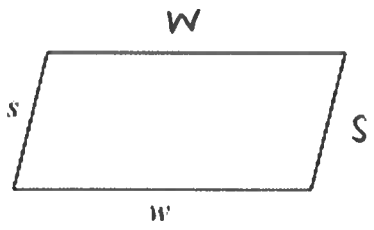
Show your mirror line.



(2)
(Total 6 marks)

Q7.

Here is a parallelogram.



Circle the expression for the **perimeter**.

$2s + 2w$ $s + w$ sw $2sw$

S + S + w + w

(Total 1 mark)

LISTING OUTCOMES

Q8.

Cards with the letters L, M and P are placed next to each other.

(a) List all the possible orders of the letters.
One has been done for you.

L	M	P
L	P	M
M	L	P
M	P	L
P	M	L
P	L	M

(2)

(b) The three cards are placed next to each other at random.

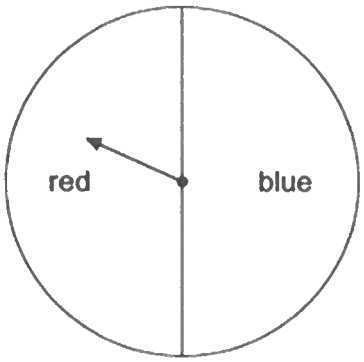
What is the probability that L is the middle letter?

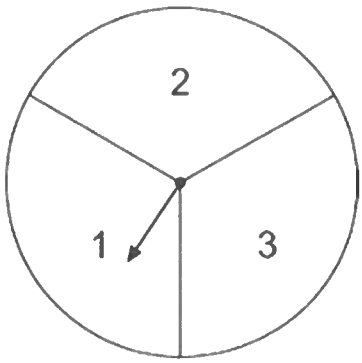
Answer 2/6

(1)

(Total 3 marks)

Q9.





The two arrows are spun.

One possible outcome is **red** and **1**.

Write down **all** the other possible outcomes.

red 2
red 3
blue 1
blue 2
blue 3

(Total 2 marks)

Q10.

When a spinner is spun, it shows

Blue (B) or Green (G) or Red (R) or White (W).

When a coin is tossed, it shows

Heads (H) or Tails (T).

The spinner is spun and the coin is tossed.

Complete this list of possible outcomes.

BH BT
GH GT
RH RT
WH WT

(Total 2 marks)

VENN DIAGRAMS

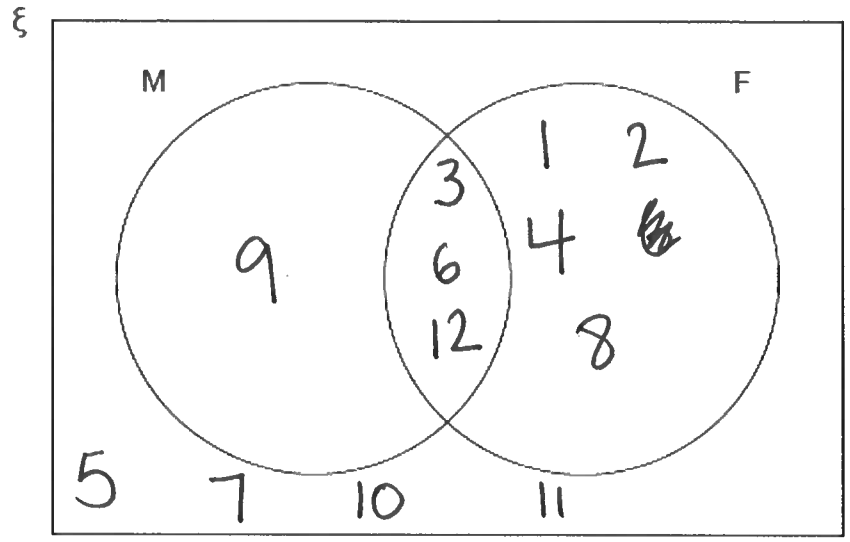
Q11.

In the Venn diagram

ξ = Whole numbers from 1 to 12 inclusive

M = Multiples of 3

F = Factors of 24



Put the numbers from 1 to 12 in the Venn diagram.

M : 3, 6, 9, 12

F : 1 × 24
2 × 12
3 × 8
4 × 6

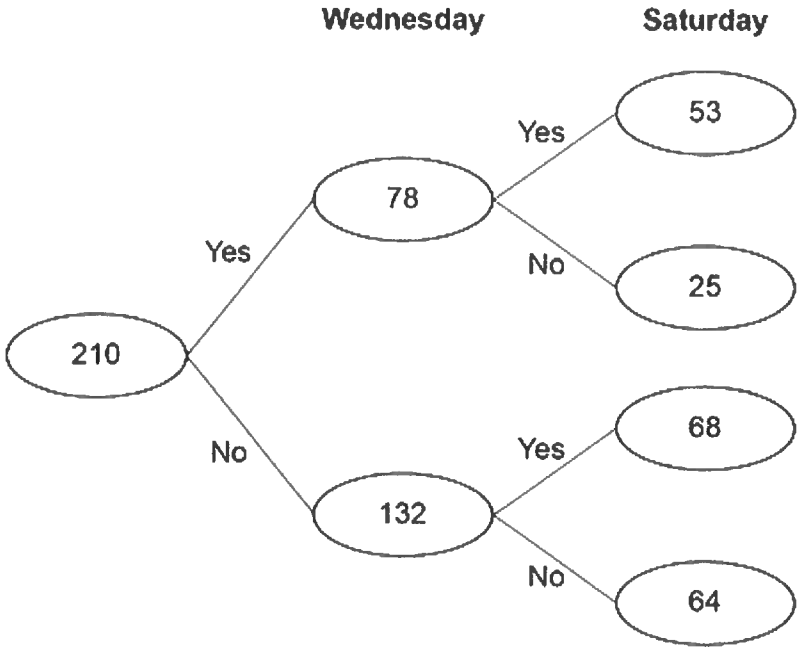
(Total 4 marks)

Q12.

A walking group has 210 members.

One week, the group organised a walk on Wednesday and a walk on Saturday.

The frequency tree shows how many members went on the walks.

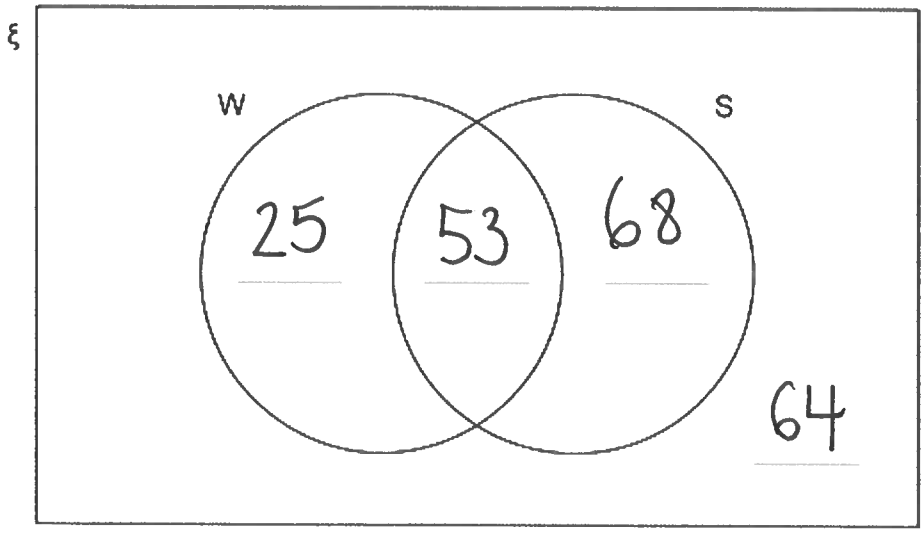


Show the information on the Venn diagram.

ξ = 210 members

W = members who went on the Wednesday walk

S = members who went on the Saturday walk



(Total 4 marks)

Q13.

During Year 9 a school runs a trip to the cinema and a trip to bowling.

125 students go to the cinema.

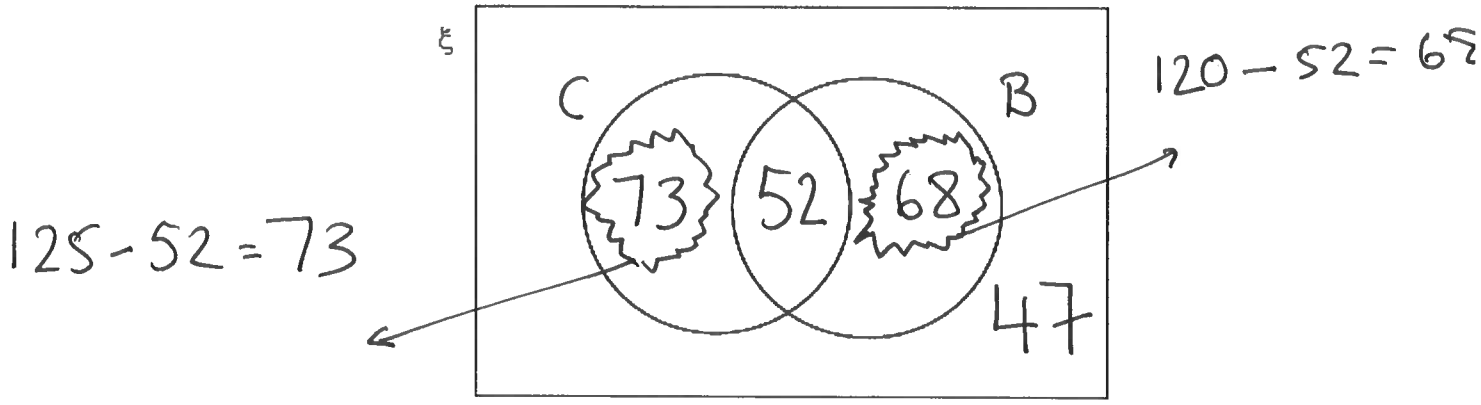
120 students go to bowling.

52 students go to both the cinema and bowling.

47 students do **not** go on either trip.

How many students are there in Year 9?

You may use the Venn diagram to help you.



73 + 52 + 68 + 47 =

Answer 240

(Total 3 marks)

USE OF CALCULATOR

Q14. Use your calculator to work out

(a) $\sqrt{576}$

Answer 24

(1)

(b) $2.3^2 + \sqrt{5}$

Answer 7.5(26...)

(1)

(c) $\frac{1}{0.4^2}$

Answer 6.25

(1)
(Total 3 marks)

Q15.

(a) Use your calculator to work out $\frac{9.75^3}{1.875} + 6.4^2$

Give your answer as a decimal.

Write down your full calculator display.

535.285

Answer [illegible]

(2)

(b) Is your answer to part (a) sensible?

Check by rounding each of 9.75, 1.875 and 6.4 to the nearest whole number.

You **must** show your working.

$\frac{10^3}{2} + 6^2 = \frac{1,000}{2} + 36$

$= 536$ pretty close to 535.285

Tick a box.

☑ Sensible ☐ Not sensible

(3)
(Total 5 marks)

Q16.

Work out the value of $3^6 - \sqrt{841}$

$729 - 29 = 700$

Answer 700

(Total 2 marks)

Q17. An approximation for the value of π is given by

$$4\left(1-\frac{22}{57}+\frac{22}{85}-\frac{22}{105}+\frac{22}{117}-\frac{22}{242}\right)$$

Use your calculator to show that this approximation is within 0.1 of 3.14

ON CALC SHOULD = 3.041

3.14 - 3.041 = 0.09 which is less than 0.1

(Total 2 marks)

SPEED, DISTANCE, TIME

Q18. A car travels 3.5 miles in 5 minutes.

Work out the average speed in miles per hour.

3.5 miles in 5 minutes

×12 ↓ ↓ ×12 ← (KEY)

42 miles in 60 minutes (1 hr)

Answer 42 mph

(Total 3 marks)

Q19.

The table shows information about journeys A and B.

Complete the table.

14 ÷ 56 = $\frac{1}{4}$ hr or 15 mins

	Distance travelled	Time taken	Average speed
A	14 miles	15 mins	56 mph
B	52 miles	1 hour 20 minutes	39 mph

(Total 2 marks)

39 x 80 ÷ 60 = 52

Q20.

Tom and Adil are the two runners in a 200-metre race.

Tom completes the race in 24 seconds.

Adil completes the race at an average speed of 28.8 ~~kilo~~ Kilometres per hour.

= 28,800m/h

Who wins the race?

You **must** show your working.

ADIL TIME = DISTANCE ÷ SPEED

TIME = 200 ÷ 28,800

TIME = [illegible]

= [illegible]

= 0.00694 hr

x 60 = 0.416 mins

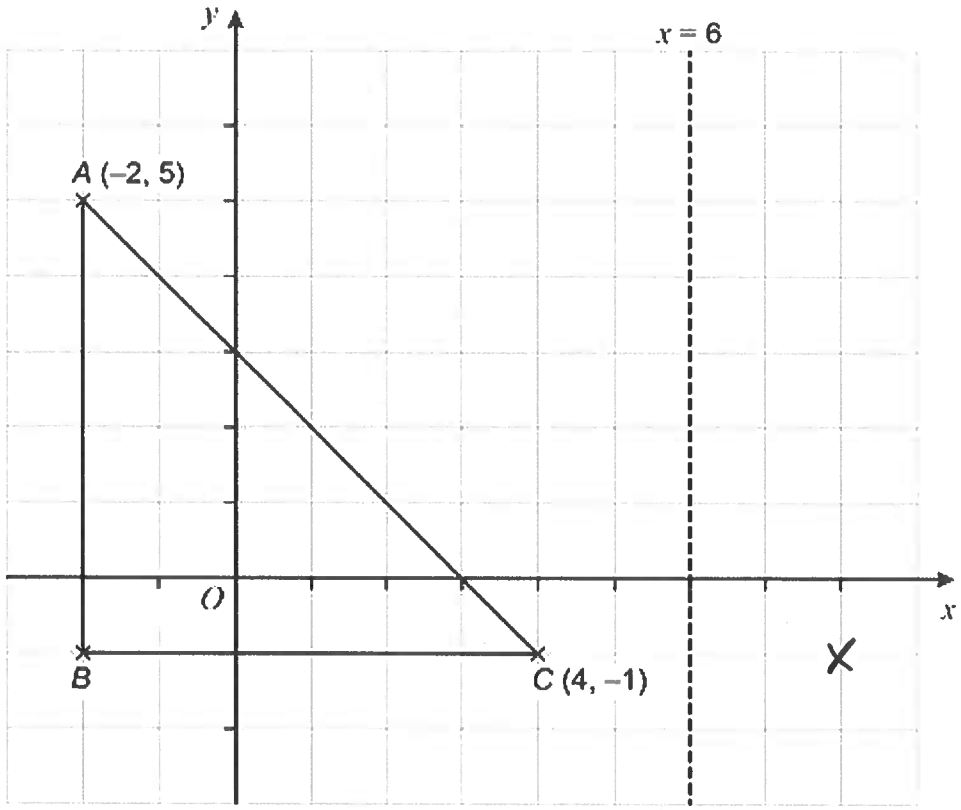
x 60 = 25 Seconds

Answer TOM

(Total 3 marks)

TRANSFORMATIONS

Q21.



(a) Work out the coordinates of *B*.

Answer (−2 , −1)

(1)

(b) Point *C* is reflected in the line $x = 6$ to point *D*.

Work out the coordinates of *D*.

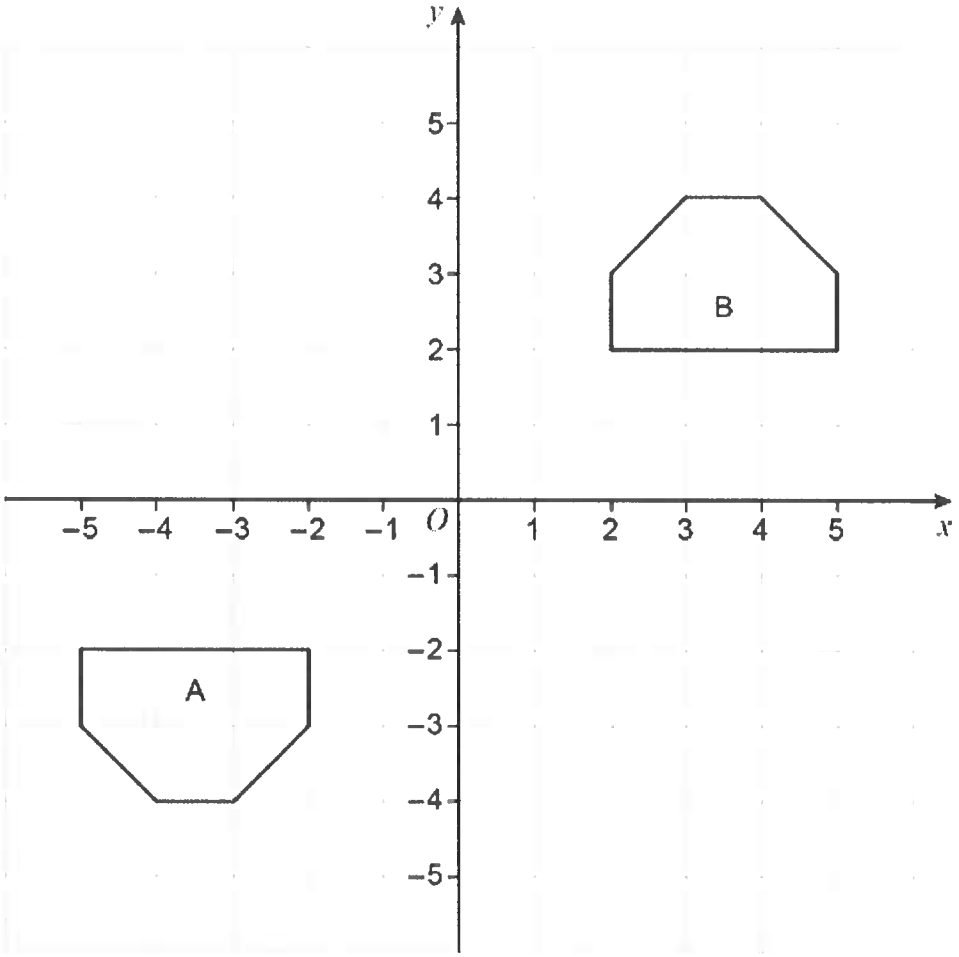
Answer (2 , −1)

(1)

(Total 2 marks)

Q22.

Describe fully the **single** transformation that maps shape A to shape B.



ROTATION (1)

180° (1)

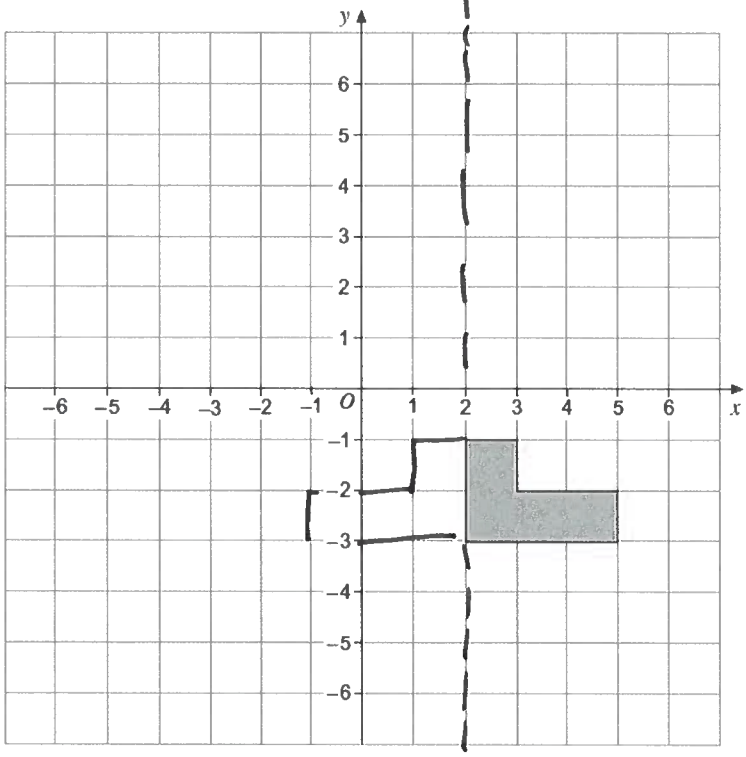
AROUND (0,0) (1)

(Total 3 marks)

Note 1 mark for each of these points

$x=2$

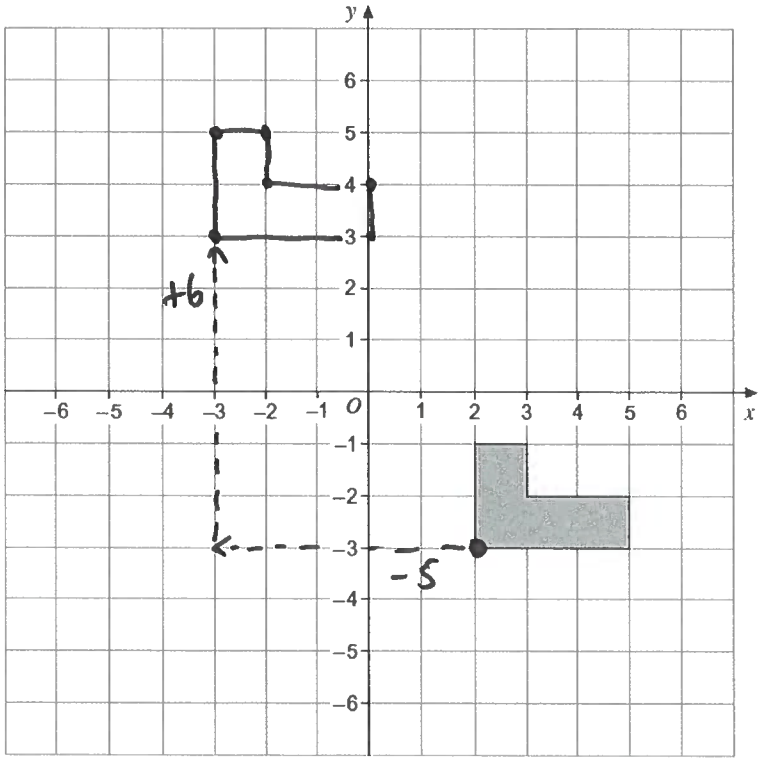
Q23. (a) Reflect the shape in the line $x = 2$



(2)

(b) Translate the shape by the vector $\begin{pmatrix} -5 \\ 6 \end{pmatrix}$.

movement vector $\begin{bmatrix} x \\ y \end{bmatrix}$



pick one point and move it carefully. then re-create the shape

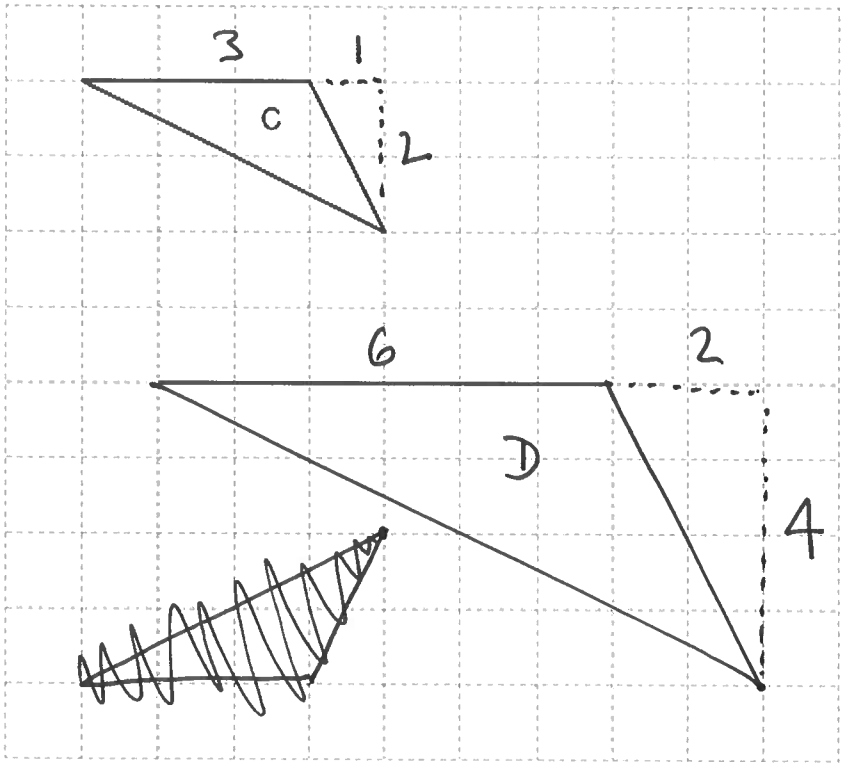
(2)

(Total 4 marks)

Q24.

On this grid, shape C is shown.

One side of shape D is also shown.



Complete shape D so that it is an enlargement of shape C with scale factor 2

(Total 1 mark)

Draw/Use Straight Line Graphs

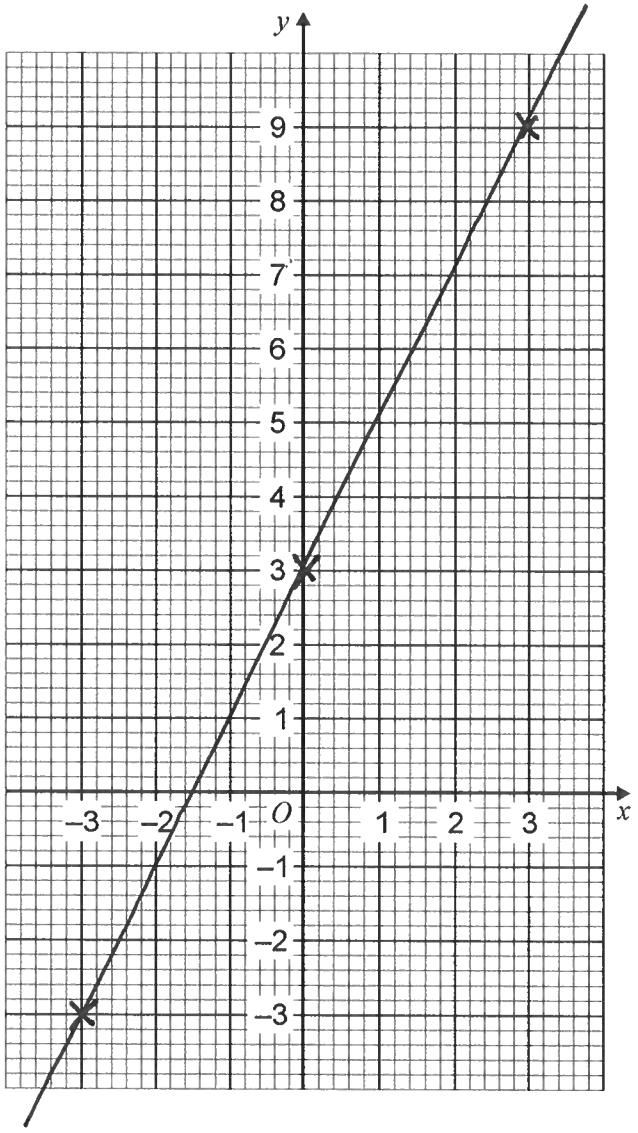
Q25.

Use this table of values to draw the graph of $y = 2x + 3$ for values of x from −3 to 3

x	−3	0	3
y	−3	3	9

(x , y)

along the corridor, then up the stairs



(Total 2 marks)

Q26.

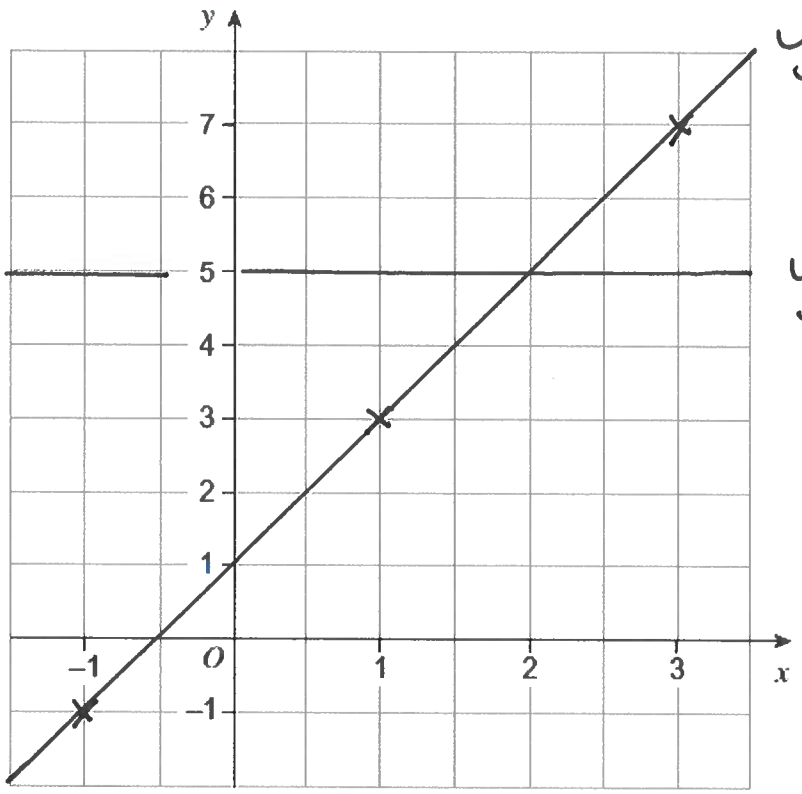
(a) Complete the table of values for $y = 2x + 1$

x	−1	1	3
y	−1	3	7

×2 +1

(1)

(b) On the grid draw the graph of $y = 2x + 1$ for values of x from −1 to 3.



(2)

(c) On the grid draw the line $y = 5$

(1)

(Total 4 marks)

Q27.

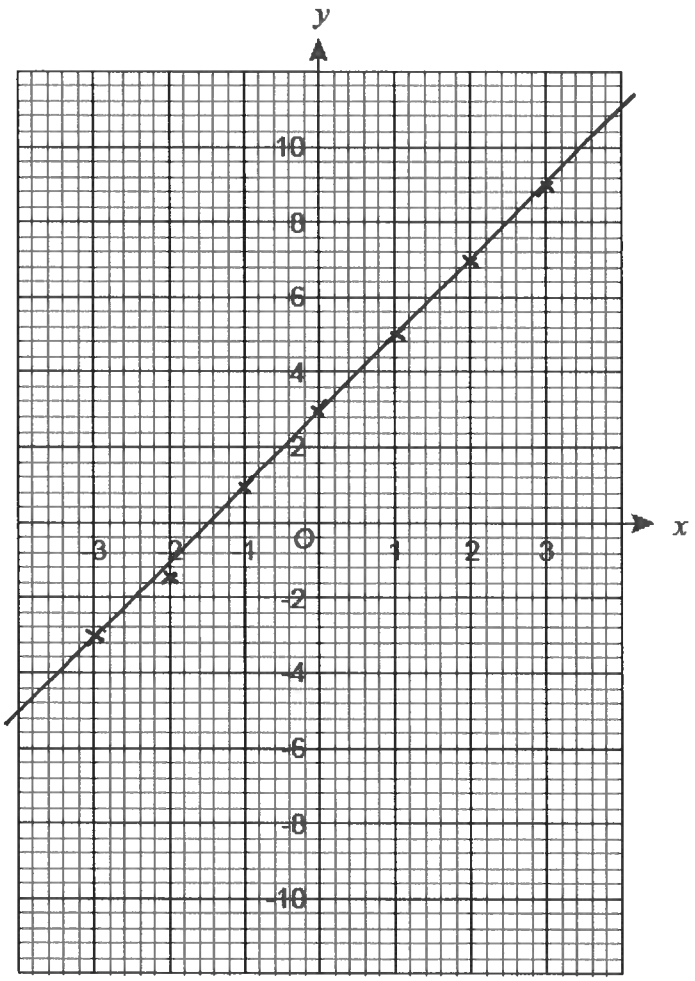
(a) Complete the table for $y = 2x + 3$

x	−3	−2	−1	0	1	2	3
y	−3	−1	1	3	5	7	9

×2 +3

(2)

(b) On the grid draw the graph of $y = 2x + 3$ for values of x from −3 to 3



(2)

(c) Solve $x = 2x + 3$

$-x \quad -x$

$0 = x + 3$

$-3 \quad -3$

$-3 = x$

$x = -3$

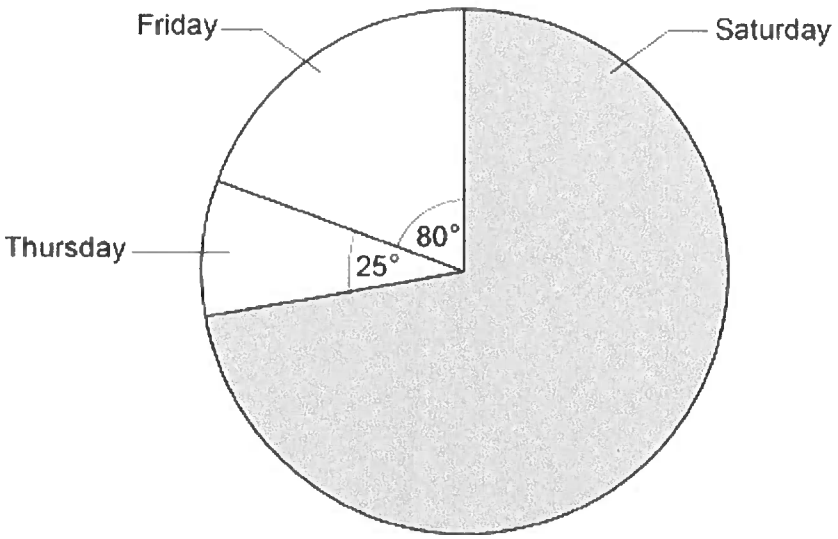
$x =$ −3

(2)

(Total 6 marks)

PIE CHARTS

Q28. The pie chart shows information about people at a fair during three days.



Not drawn accurately

There were 132 **more** people on Friday than on Thursday.

Work out the number of people on Saturday.

FRIDAY = 80°

THURSDAY = 25°

FRIDAY HAS 80-25 = 55° more than THURSDAY

so 55° = 132 people

so 1° = 132/55 = 2.4 people

Answer _____

(Total 3 marks)

SATURDAY HAS 360° - 80° - 25°
= 255°

So SATURDAY HAS 255 x 2.4 = 612

612 people

Q29.

60 people were asked if they would vote in an election.

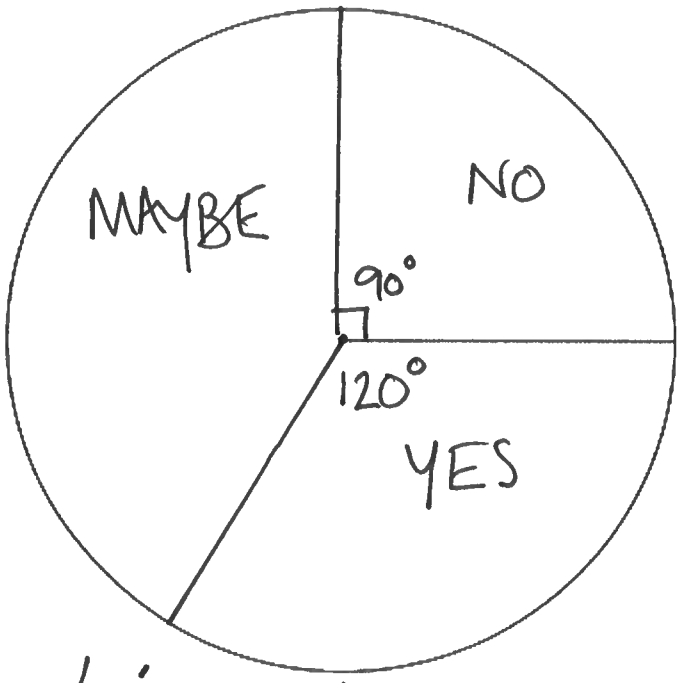
- $\frac{1}{4}$ of the people said No
- 20 people said Yes
- The rest said Maybe

Draw and label a pie chart to show this information.

NO

$\frac{1}{4}$ of 360 =

$\frac{1}{4} \times 360 = 90°$



YES 20/60 = 1/3

1/3 of 360 = $\frac{1}{3} \times 360 =$ 120°

(Total 3 marks)

END OF QUESTIONS