Write your name here

Surname	Other names
Answers	

Grade One and Two Paper
Level 1 / Level 2
GCSE (9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics Paper C

Grade One and Two

Wednesday Form Plus Maths Lesson
Time: 2 hours 30 minutes

Paper Reference
Grade 1-2

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks
150

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 not be used.**

Information

- The total mark for this paper is 150
- 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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

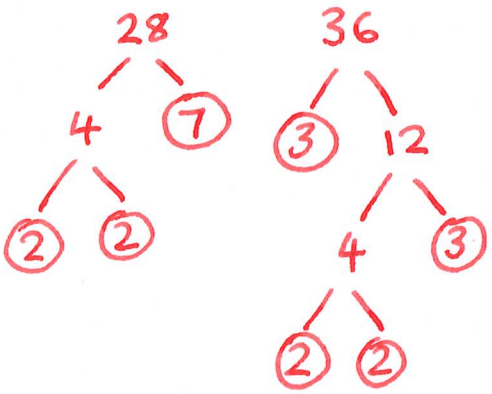
Q1 Write down all the factors of 28.

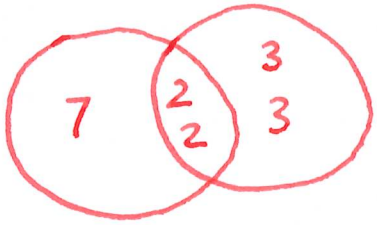
1 × 28
2 × 14
4 × 7

1, 2, 4, 7, 14, 28

(2)

Q2 Find the LCM of 28 and 36.





LCM(28,36) = 2 × 2 × 3 × 3 × 7
= 252

252

(2)

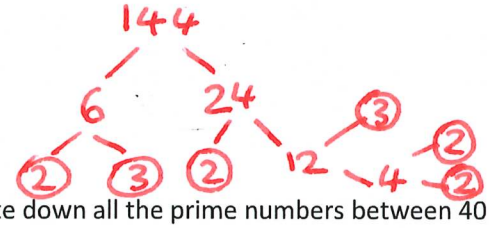
Q3 What is $8^2 - 6^2 + 2^3$

64 − 36 + 8 = 36

36

(2)

Q4 Write down the value of $\sqrt{144}$.



2	2
2	2
3	3

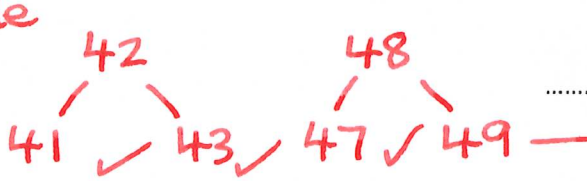
2 × 2 × 3 = 12

12

(1)

Q5 Write down all the prime numbers between 40 and 50.

6× table



41 43 47

49 = 7 × 7 so no

(2)

Q6 Write thirteen thousand, one hundred and eight in figures.

TTh	Th	H	T	U
1	3	1	0	8

13,108

(1)

Q7 Write 62,809.41 in words.

Sixty-two thousand, eight hundred and nine point four one.

(1)

Q8 a $7.89 \times 10{,}000$

7.89
78900.

78,900

(1)

b $3542 \div 100$

3542. → Slide digits 2 columns down
35.42

35.42

(1)

Q9 Put the following numbers into ascending order

24 21.938 21.83 22 21.00482 210.8

21.00482, 21.83, 21.938, 22, 24, 210.8

(1)

Q10 Put the following numbers into order.

-4 3 -3.4 $-3\frac{1}{2}$ -3

$-4, -3\frac{1}{2}, -3.4, -3, 3$

(1)

Q11 Write the value of the following:

a $14 - 23 =$ -9

b $-28 - 17 =$ -45

c $-18 - (-13) =$ -5

d $-74 + 41 =$ -33

e $-9 + (-12) =$ -21

(5)

Q12 Write the value of the following:

a $-4 \times 8 =$ -32

b $6 \times (-2) =$ -12

c $-24 \div (-3) =$ 8

d $-36 \div 3 =$ -12

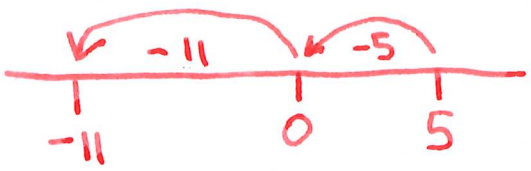
e $14 \div (-2) =$ -7

(5)

Q13 The temperature in Perth is 16°C colder than it is in Newcastle.

In Newcastle, the temperature is 5°C.

What is the temperature in Perth?

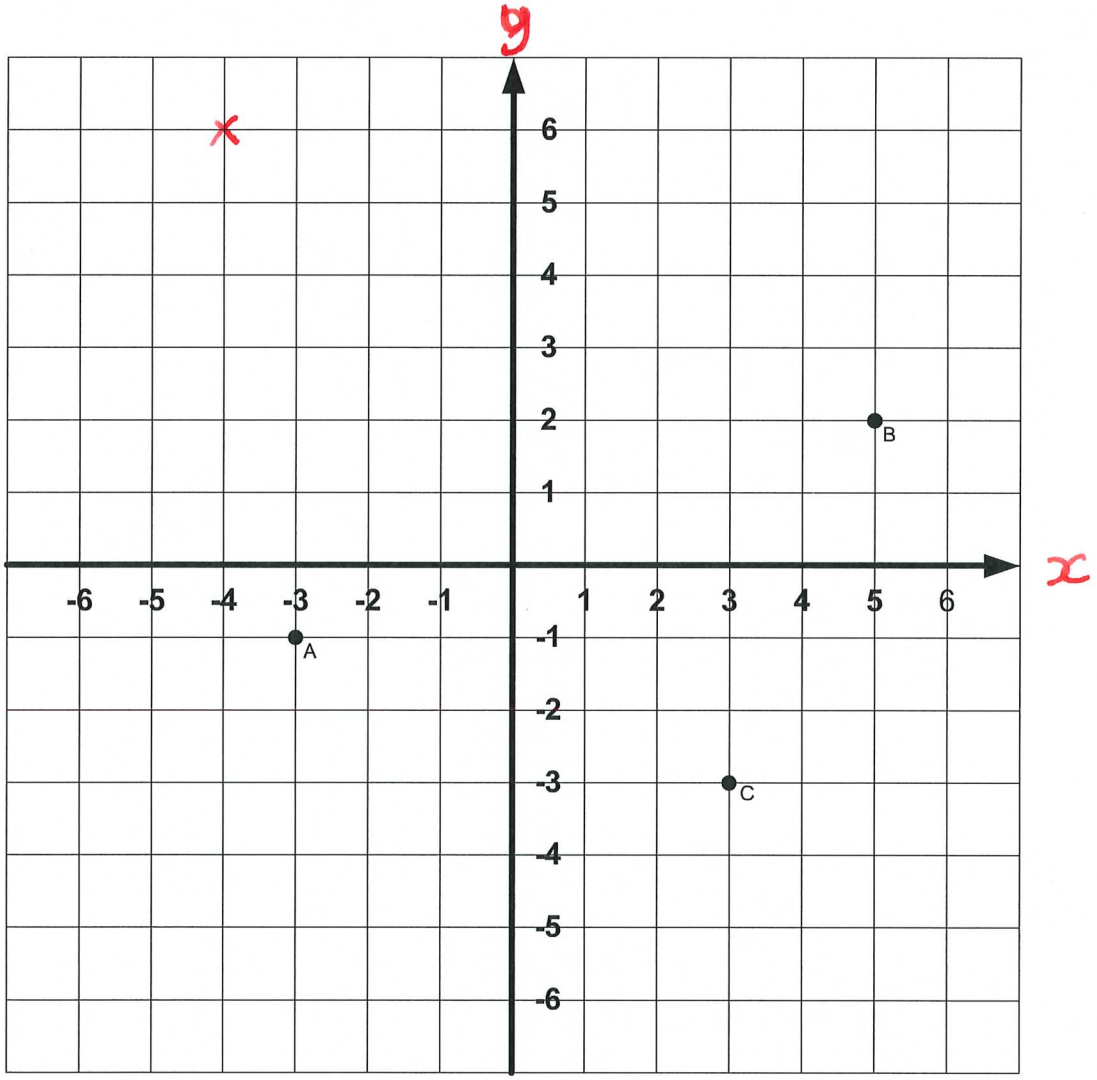


-11°C

(2)

Q14 The co-ordinates of the vertices of a shape shown on the grid below.

a Write down the co-ordinates below.



(x, y)

A: (-3, -1)

B: (5, 2)

C: (3, -3)

(3)

b A fourth point should be on the grid as well at the point (-4,6).

Mark the point with an **X**.

(1)

Q15 A line runs from (2, 12) to (10, 31).

Bill needs to mark the midpoint of the line.

At what co-ordinates should Bill mark the midpoint?

$x: \quad \frac{2+10}{2} = \frac{12}{2} = 6$

$y: \quad \frac{12+31}{2} = \frac{43}{2} = 21\frac{1}{2}$

$(6, 21\frac{1}{2})$

(2)

Q16 Below is an arithmetic sequence of numbers.

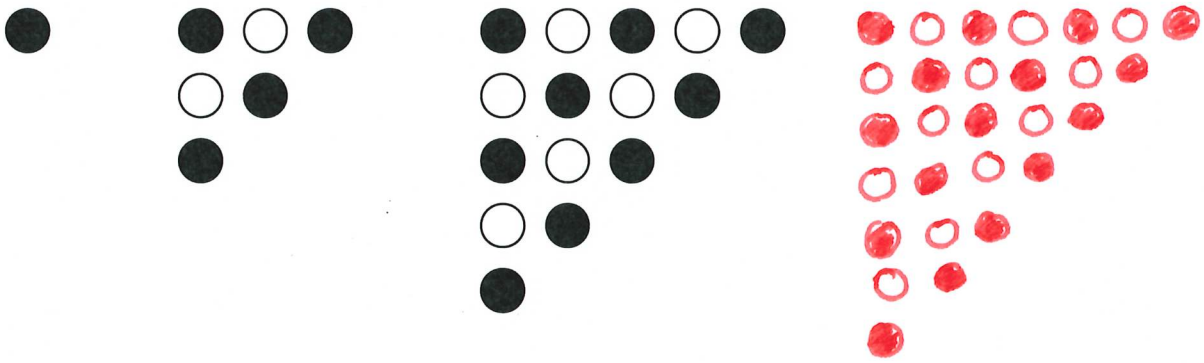
Write down the values of the missing numbers.

48 , 52, 56, 60, 64, 68 , 72

(3)

Q17 Look at the pattern below.

Draw the next next "term" in this sequence.



(2)

Q18 Look at the sequence of numbers below.

23, 19, 15, 11

a Write a rule explaining how this sequence changes from term to term.

Subtract 4

(1)

b What would be the tenth term in this sequence?

1	2	3	4	5	6	7	8	9	10
23	19	15	11	7	3	-1	-5	-9	-13

-13

(1)

c Is the number -4 in this sequence? Explain how you know.

No. I have worked out the numbers in the sequence. -4 comes between -1 and -5.

(1)

Q19 Simplify the following expressions

a $7 \times t \times t =$ $7t^2$

b $2a + b + 8a - 5b =$ $10a - 4b$

c $4(3f - 9) =$ $12f - 36$

	3f	-9
4	12f	-36

d $t^2 + 6t^2 + t - 5t^2 =$ $2t^2 + t$

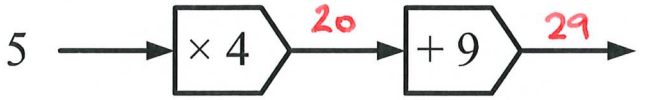
e $3x(5x + 8y) =$ $15x^2 + 24xy$

(5)

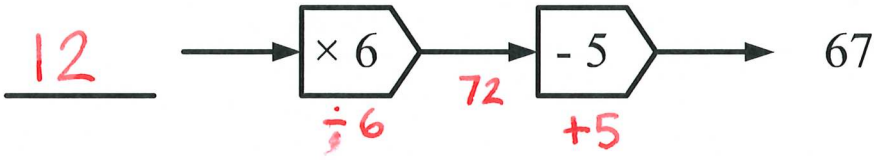
	5x	+8y
3x	$15x^2$	+24xy

Q20 Look at the function machines below.

a Work out the missing quantities.



29



(2)

b Write an equation that would perform the same function if we put **x** into the input.

$6x - 5$

(2)

Q21 Solve the equation

a $x + 9 = 30$

$-9(\quad)-9$

$x = 21$

b $4x - 7 = 5$

$+7(\quad)+7$

$4x = 12$

$\div 4(\quad)\div 4$

$x = 3$

(3)

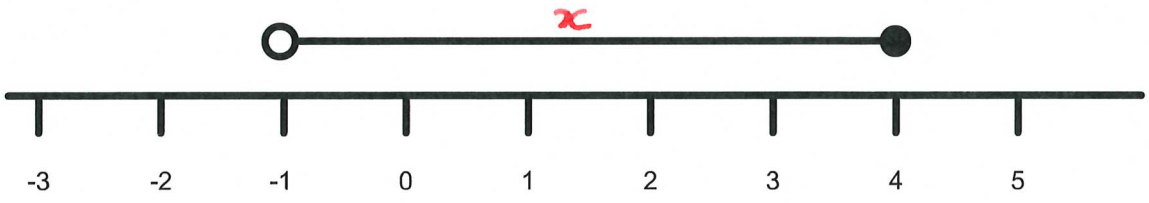
Q22 The variable x is an integer within the range $21 \leq x < 30$.

Write down all the possible values of x.

21, 22, 23, 24, 25, 26, 27, 28, 29

(2)

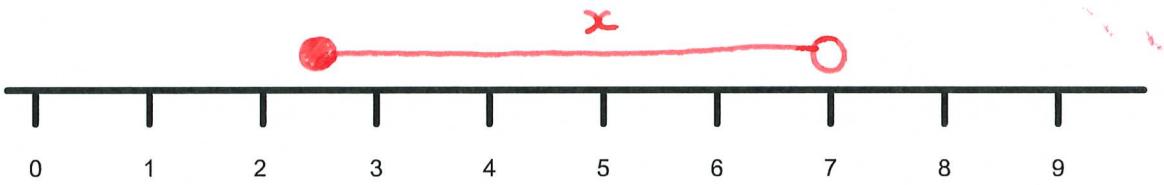
Q23 State the inequalities shown on the number lines below.



$-1 < x \leq 4$

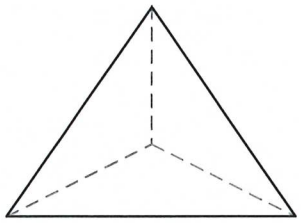
(2)

Q24 Draw the inequality $2\frac{1}{2} \leq x < 7$ onto the number line below.



(2)

Q25 Look at the picture of the 3D shape below.



a What is the name of the shape?

tetrahedron

(1)

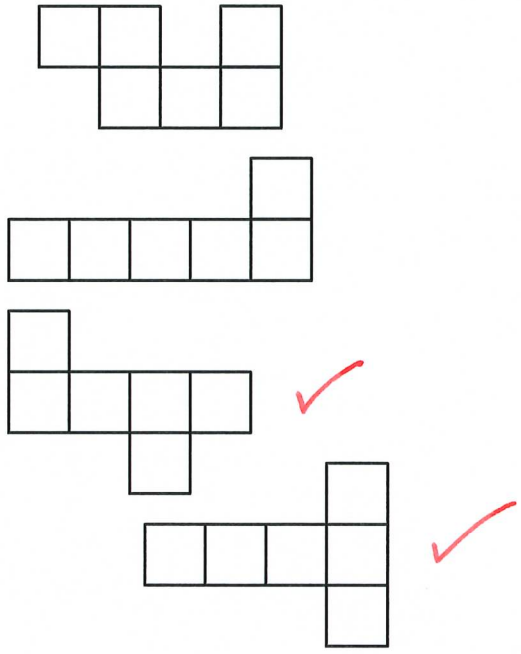
b Complete the following sentence.

The shape above has 4 faces, 6 edges and 4 vertices.

(2)

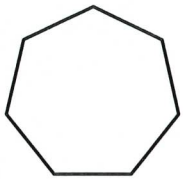
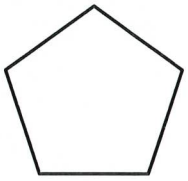
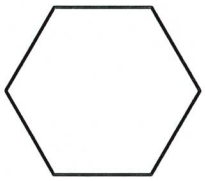
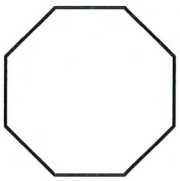
Q26 Below are some nets of cubes.

Tick nets that will work to form a cube.



(2)

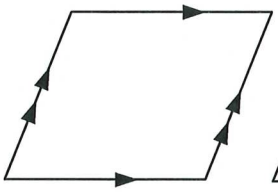
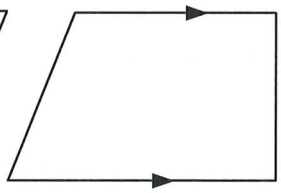
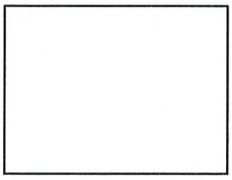
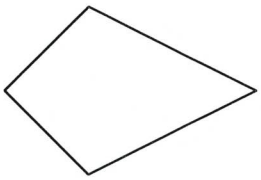
Q27 Name each of the following shapes.

heptagon pentagon hexagon octagon

(4)

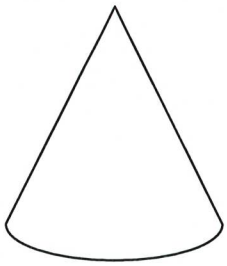
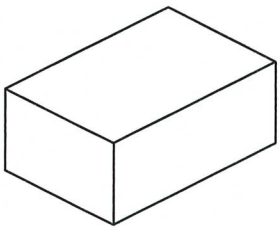
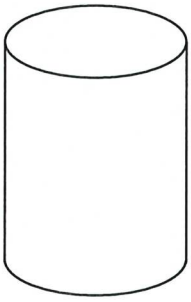
Q28 Name each of the following quadrilaterals.

rhombus trapezium oblong kite

(4)

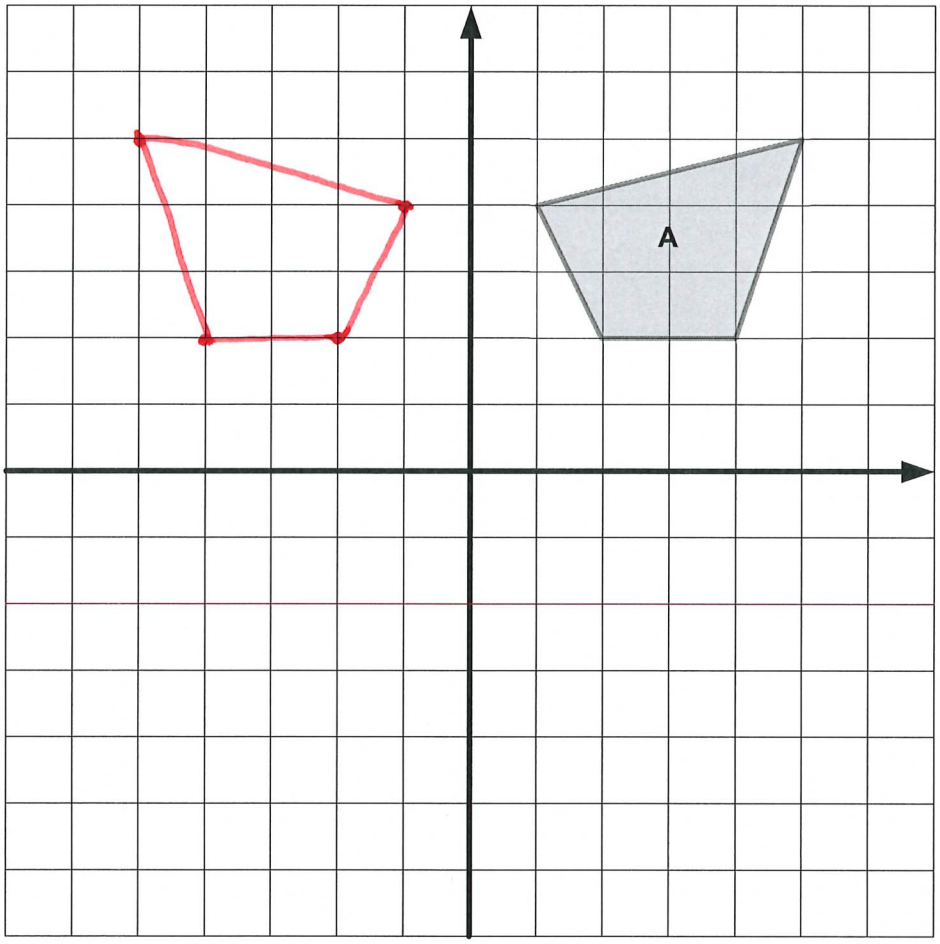
Q29 Name each of the solid shapes below.

Cone cuboid cylinder

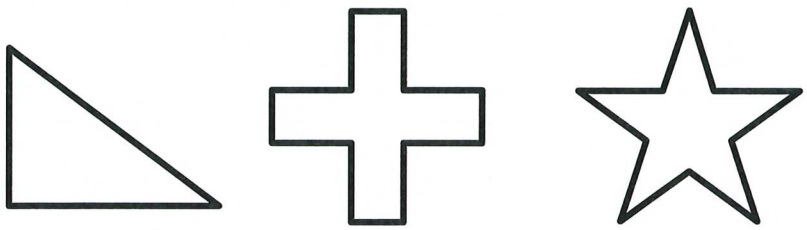
(3)

Q30 On the diagram below, reflect the shape in the y axis.



(2)

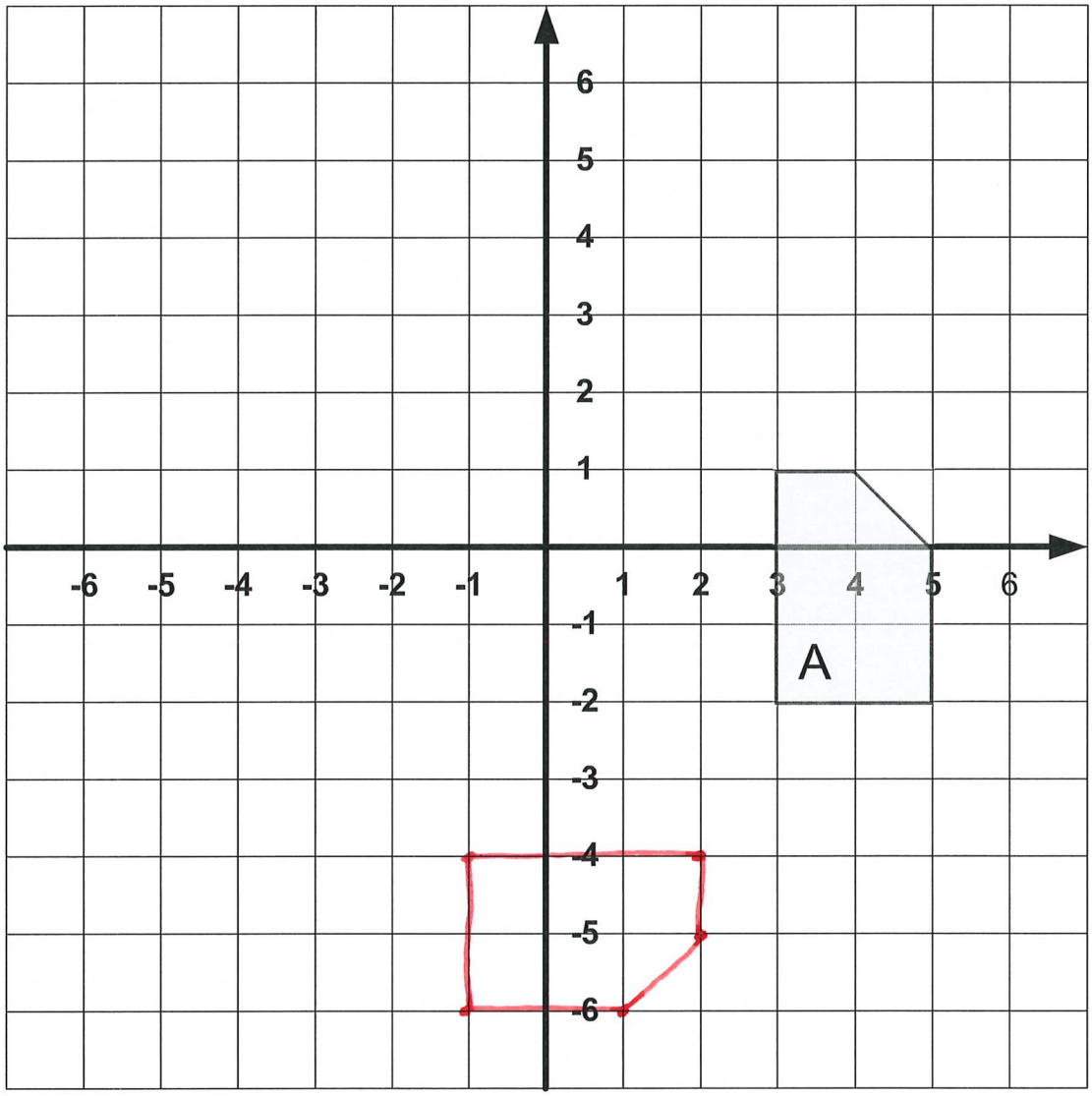
Q31 How many orders of rotational symmetry do each of the shapes below have?



1 ..... 4 ..... 5 .....

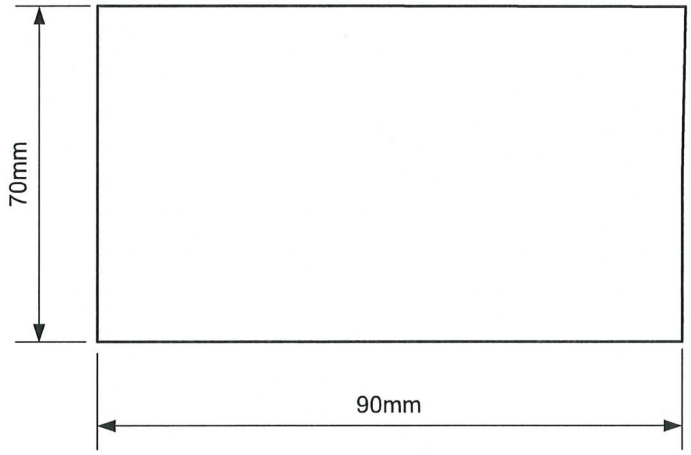
(3)

Q32 On the diagram below, rotate Shape A 90° clockwise about point (0, -1).



(3)

Q33 Below is a shape.



a What is the perimeter of the shape?

70 + 90 + 70 + 90 = 320 mm

320 ..... mm

(3)

b What is the area of the shape?

90 x 70 = 6300 mm^2

6300 ..... mm^2

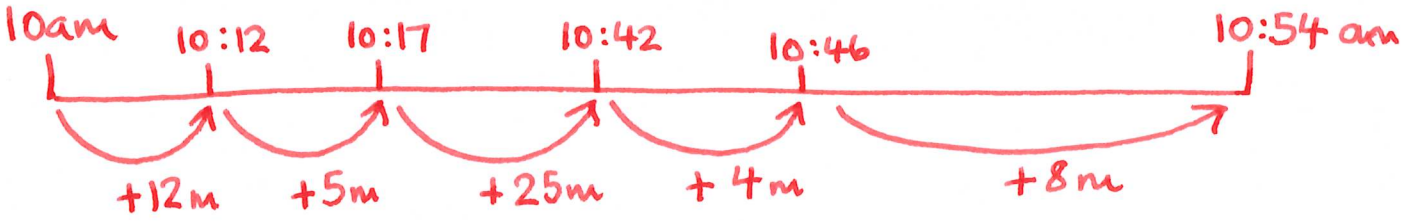
(3)

Q34 Mark sets off from his house to go to the library. He leaves his house at 10am.

He walks to the bus stop which takes him 12 minutes. Once there, he waits for the bus for a further five minutes.

The bus journey takes 25 minutes. He gets off at the stop outside the library and waits for four minutes before it is safe to cross the road.

It takes Mark eight minutes to cross the road and walk into the library. At what time does he reach the library?



10:54 am

(4)

Q35 Write down the most sensible unit to use for the following:

a Length of a car

metres

(1)

a Weight of a blue whale

kg or tons

(1)

a The amount of fluid in a can of coke?

millilitres

(1)

Q36 Below is a list of the number of minutes that a group of passengers had to wait for a bus.

23 17 18 18 17 15 14 14 13 15 16

a Calculate the median time that the passengers had to wait.

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

1	~~3 4 4 5 5 6 7 7 8 8~~
2	~~3~~

16 mins

(2)

b Calculate the mode time that the passengers had to wait.

There is no mode because 14, 15, 17, 18 all have two occurances.

(1)

c Calculate the mean time that the passengers had to wait.

$$\bar{x} = \frac{23+17+18+18+17+15+14+14+13+15+16}{11}$$

$$= \frac{180}{11} = 16\frac{4}{11}$$

$16\frac{4}{11}$

(3)

$$11 \overline{)180} \quad 16 \text{ r } 4$$

Q37 Gabriella did a study on the favourite take away food of the people in his class.

The results are listed below.

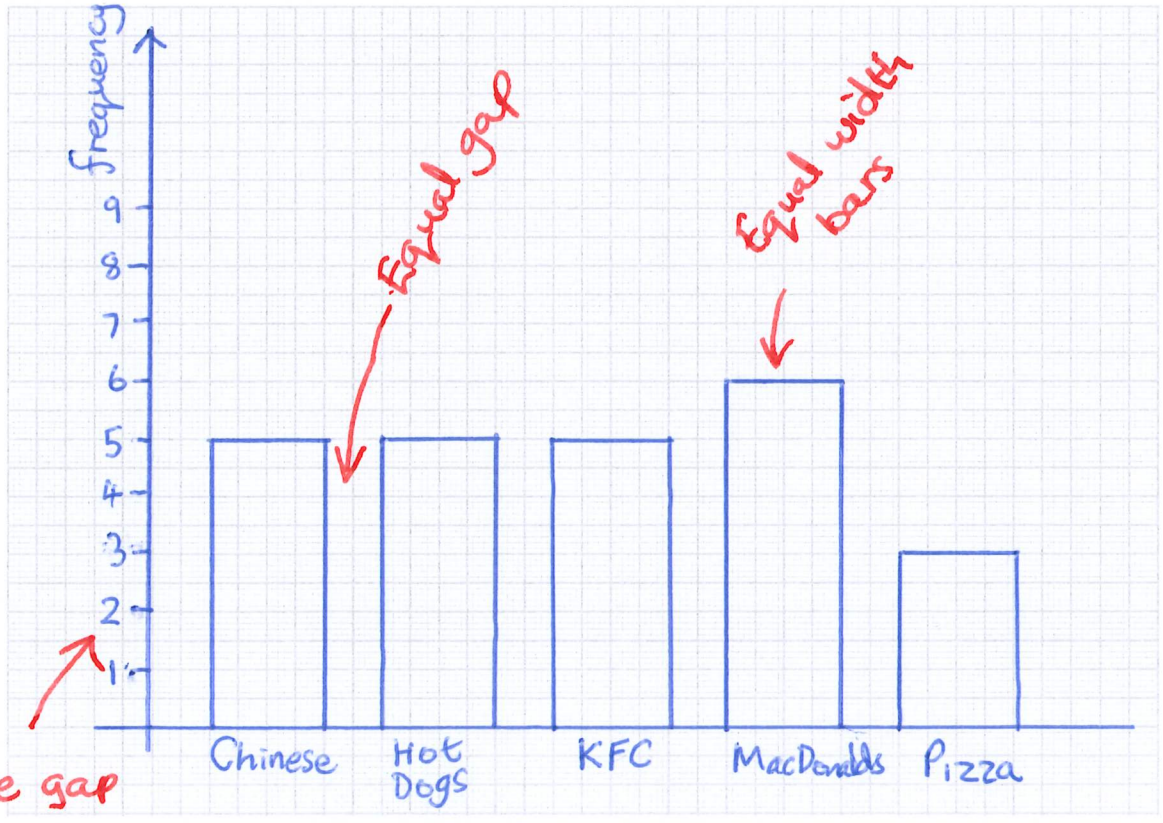
Hot Dogs	Chinese	KFC	KFC	MacDonalds	MacDonalds
MacDonalds	KFC	Hot Dogs	Chinese	Chinese	Hot Dogs
Hot Dogs	MacDonalds	MacDonalds	Chinese	Pizza	MacDonalds
KFC	KFC	Chinese	Pizza	Pizza	Hot Dogs

a Fill in the tally chart below.

Favourite Food	Tally	Frequency or Total
Chinese	𝍸	5
Hot Dogs	𝍸	5
KFC	𝍸	5
MacDonalds	𝍸 I	6
Pizza	III	3

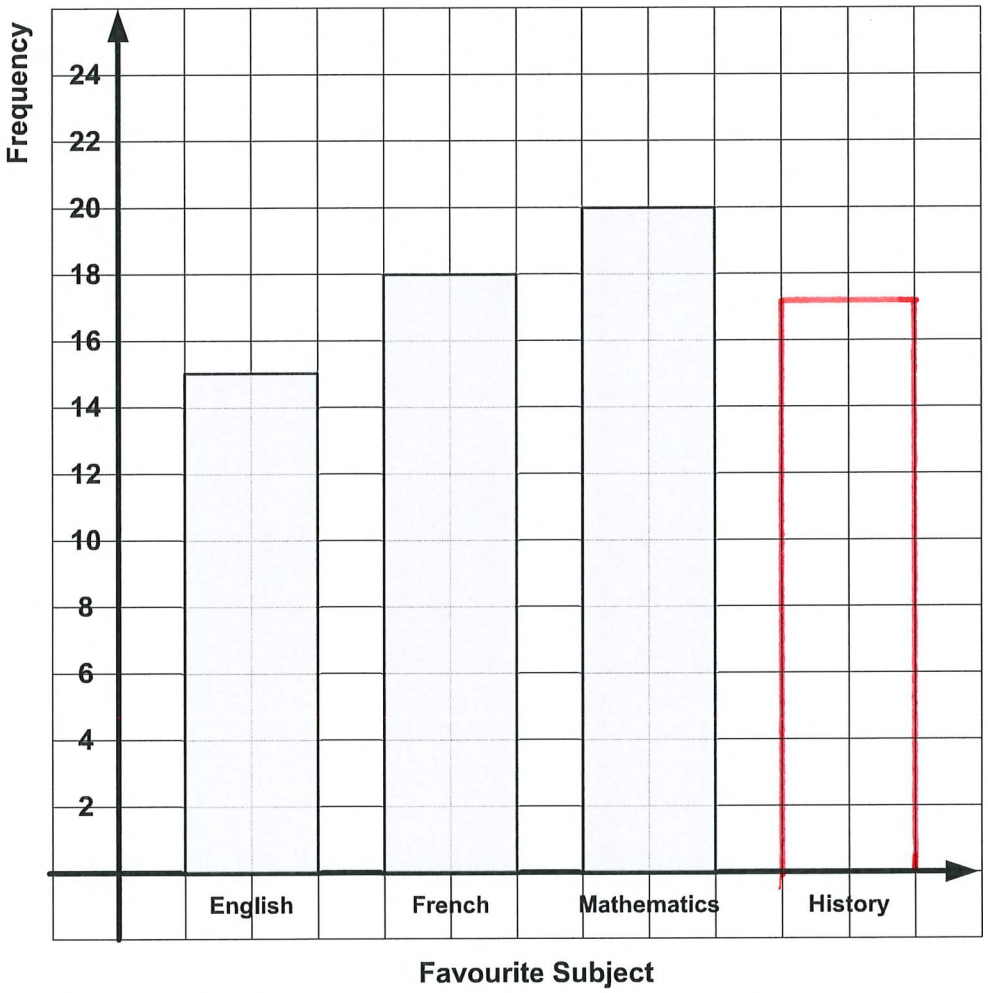
(2)

b Draw a bar chart on the graph paper below showing the information that Bill collected.



(4)

Q38 Joanne drew another bar chart.



a Seventeen people liked history.

Draw this information onto the bar chart.

(2)

b Which was the most popular lesson?

Mathematics

(1)

c How many more people liked French than English?

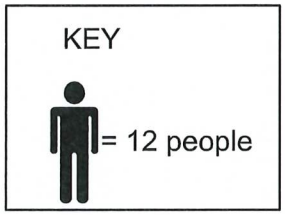
18 - 15 = 3

3

(1)

Q39 The pictogram below shows the different number of people visiting a shop in the first hour of opening on Monday, Wednesday and Friday last week.

Monday	 12+12+8 =	32
Wednesday	 5 x 12 =	60
Friday	 12+12+12+6	= 42



a How many people visited the shop on Wednesday?

60

(1)

b How many people visited the shop altogether?

32 + 60 + 42 = 134

134

(1)

c What was the mean average number of people that visited the shop?

$\frac{134}{3} = 44\frac{2}{3}$

$44\frac{2}{3}$

(2)

Q40 A box of sweets had 30 chocolate eclairs, 15 Double Deckers and 25 Twix sweets left.

Write this as a ratio in its **simplest** form.

30 : 15 : 25

÷5

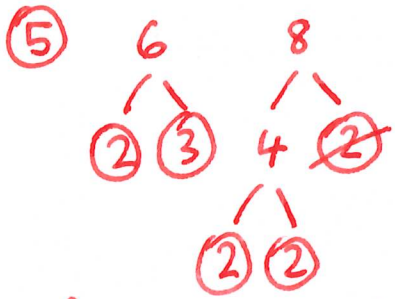
6 : 3 : 5

6 : 3 : 5

(2)

Q41 Put the following numbers in ascending order.

$\frac{3}{5}$ $\frac{2}{6}$ $\frac{3}{8}$



$\frac{3}{5} = \frac{72}{120}$ $\frac{2}{6} = \frac{40}{120}$ $\frac{3}{8} = \frac{45}{120}$

$\frac{2}{6}, \frac{3}{8}, \frac{3}{5}$

(2)

Q42 Simplify the following fractions

a $\frac{15}{27} = \frac{5}{9}$

(1)

b $\frac{6}{15} = \frac{2}{5}$

(1)

c $\frac{21}{42} = \frac{3}{6} = \frac{1}{2}$

(1)

Q43 Convert $\frac{13}{20}$ into a percentage

$\frac{13}{20} = \frac{65}{100}$

65%

(1)

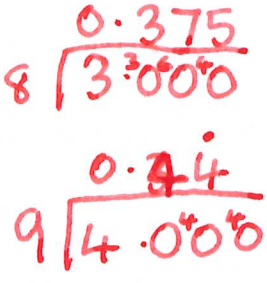
Q44 Write $\frac{9}{100}$ as a decimal

0·09

(1)

Q45 Put the following numbers in order

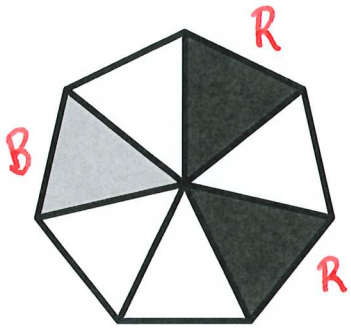
$\frac{4}{9}$ 37% 0.24 $\frac{3}{8}$



0·24, 37%, $\frac{3}{8}$, $\frac{4}{9}$

(2)

Q46 Below is a fair spinner. What are the chances of the spinner landing on red?



a Give your answer as a word: ..... Unlikely .....

(1)

b Give your answer as a number: ..... 2/7 .....

(1)

The spinner is spun 70 times.

c How many times would you expect the spinner to land on blue? ..... 10 .....

$\frac{1}{7} \times \frac{70}{1} = \frac{1}{1} \times \frac{10}{1} = 10$

(1)

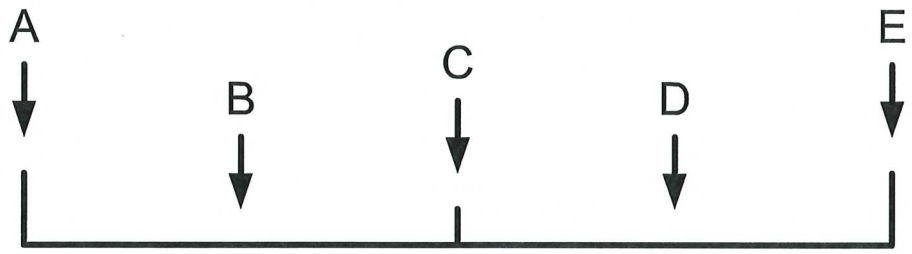
d How many times would you expect the spinner to land on white?

$\frac{4}{\cancel{7}\ 1} \times \frac{\overset{10}{\cancel{70}}}{1} = 40$

..... 40 .....

(2)

Q47 Below is a probability scale. It runs from zero to one.



Write the word that describes the position indicated by each arrow on the probability scale above.

A Impossible

B Unlikely

C Even chance

D Likely

E Certain

(2)

Q48 A spinner has four different colours on it.

There is one white section, three red sections and two blue sections. There are also some yellow sections.

The chance of spinning a white section is 0.1.

How many yellow sections are there?

$0.1 = \frac{1}{10}$ So there are ten parts to the spinner.

4 yellow.

(2)

$1+3+2=6$

$10-6=4$.

Q49 Billy and Joel play a game of cards. The chances of Billy winning is 0.6. The chances of the two players drawing are 0.1.

a What are the chances of Joel winning?

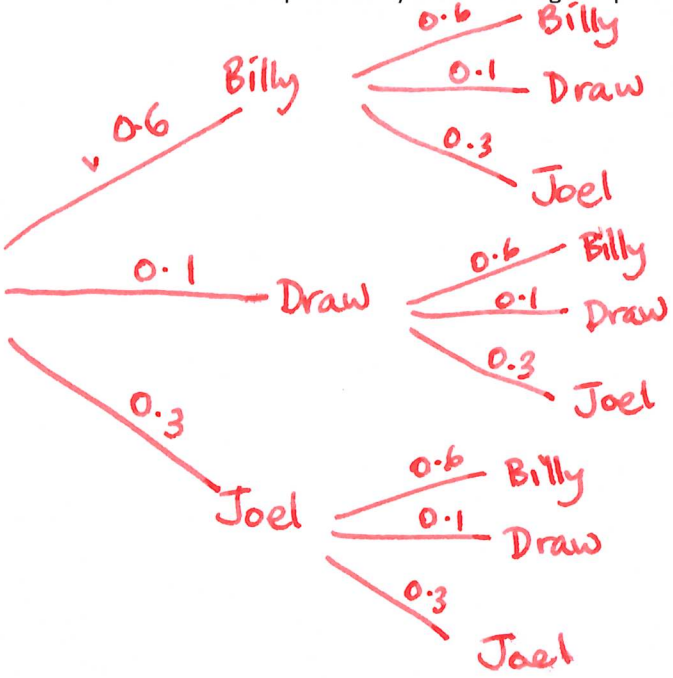
$1 - (0.6 + 0.1) = 1 - 0.7 = 0.3$

0.3

(2)

The two friends play two games.

b Draw a probability tree showing the possible outcomes of each game.



(3)

c What is the probability of the players drawing both games?

$0.1 \times 0.1 = 0.01$

(2)

Q50 Four friends go on holiday to Greece together. They need two rooms. They all fit in the same taxi. They stay in the hotel for 7 nights. The friends agree to spread the cost of their holiday equally between them.

The flights cost £285.92 each.

The taxi from the airport to their hotel costs £140.00.

Each room in the hotel costs £115 per night.

They each take £450 spending money.

a How much money does the holiday cost altogether?

Flights

285.92
× 4
1143.68

Spend

450
× 4
1800

Total

1800.00
1143.68
140.00
1610.00
4693.68

Taxi

140.00

Rooms

2 × 7 = 14

115
× 14
460
1150
1610

£1610

The holiday costs:

£4693.68

(4)

Billy has £1100 saved up.

b Does he have enough money to go on holiday? Show how you know.

÷ × − ↓

1173.42
4 | 4693.68
−4↓
06
−4↓
29
−28↓
13
−12↓
16
−16↓
08
−8
0

1	4
2	8
3	12
4	16
5	20
6	24
7	28
8	32
9	36
10	40

No. Billy doesn't have enough money because 1100 < 1173.42

(3)