Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

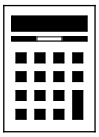
F

Foundation Tier Paper 2 Calculator

Thursday 6 June 2019 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.



Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice
In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26–27	
TOTAL	

Do not write outside the box

Answer **all** questions in the spaces provided

1 Circle the number that is one **less** than a cube number.

[1 mark]

20 22 24 26

2 Circle the fraction which is equal to 0.25

[1 mark]

$\frac{1}{40}$ $\frac{2}{5}$ $\frac{3}{12}$ $\frac{4}{100}$

3 Here is a number line.

Which number is at A?

Circle your answer.

[1 mark]

3.3 3.55 3.6 3.8

Do not write outside the box

4 How many millimetres are equal to 3.27 metres?

Circle your answer.

[1 mark]

32.7 327 3270 32 700

5 Which is longer, $\frac{3}{4}$ of a day or 1000 minutes?

You **must** show your working.

[3 marks]

Answer _____

7

Do not write outside the box

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

Give your answer as a decimal.
Write down your full calculator display.

[2 marks]

Answer _____

6 (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.

[3 marks]

Tick a box.

☐ Sensible ☐ Not sensible

Do not write outside the box

7 Complete the bank statement.

[3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/04/2019	Starting balance			_____
05/04/2019	Council tax		189.34	72.09
10/04/2019	Refund	_____		86.75
12/04/2019	Salary	1430.29		_____

Turn over for the next question

8

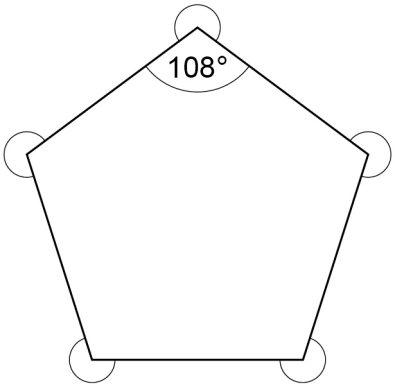
Do not write outside the box

8 (a) The interior angle of a regular pentagon is 108°

Work out the sum of the five **reflex** angles at the vertices of a regular pentagon.

[3 marks]

Not drawn accurately



Answer _____ degrees

Do not write outside the box

Omar asks Harry,

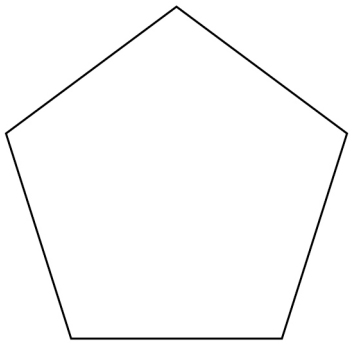
"How many lines of symmetry does a pentagon have?"

Harry assumes it is a regular pentagon.

His answer is 5.

8 (b) Draw the lines of symmetry on this regular pentagon.

[1 mark]



8 (c) Omar then says,

"What if the pentagon is **not** regular?"

For a pentagon that is **not** regular, what is true about the number of lines of symmetry?

Tick **one** box.

[1 mark]

☐ There must be 0

☐ There could be 0 or 1

☐ There could be 0, 1 or 2

☐ There could be any number up to 5

5

Turn over ►

Do not write outside the box

9 56 customers pay for satellite television.

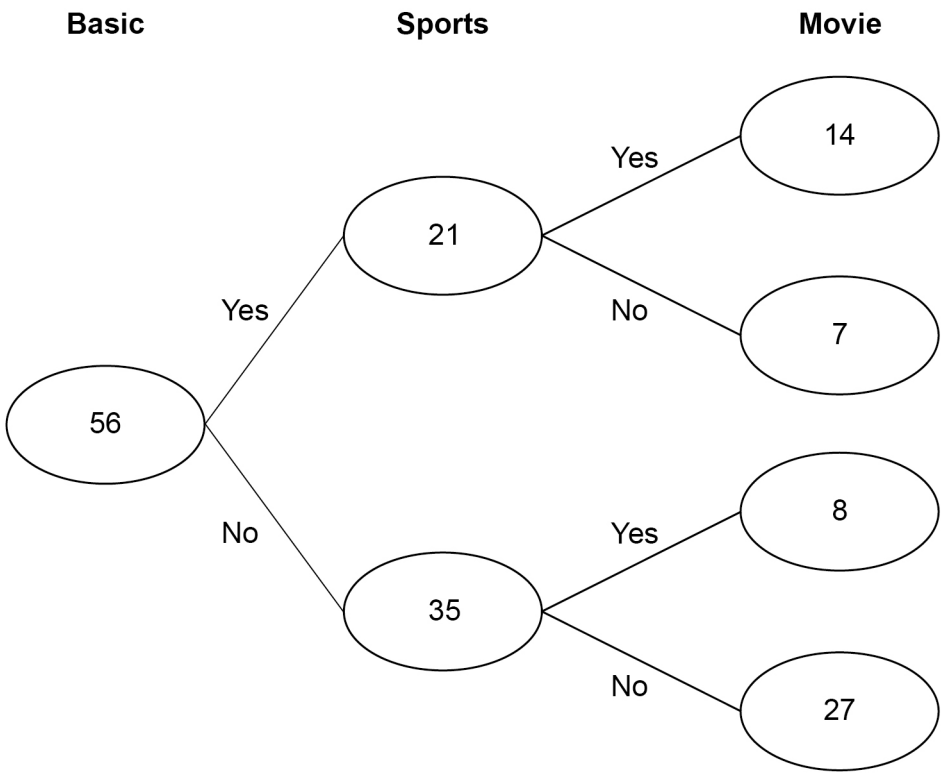
They **all** have the Basic package for £24.50 per month.

Some also have

the Sports package for £27.50 extra per month

the Movie package for £18 extra per month.

The frequency tree shows the number of customers with each package.



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In total, how much per month do the 56 customers pay?

[4 marks]

Answer £_____

Turn over for the next question

4

Do not write outside the box

10 Zoe is thinking of a number.

$$\frac{3}{10} \text{ of } 90 = \frac{1}{2} \text{ of her number}$$

What number is she thinking of?

[3 marks]

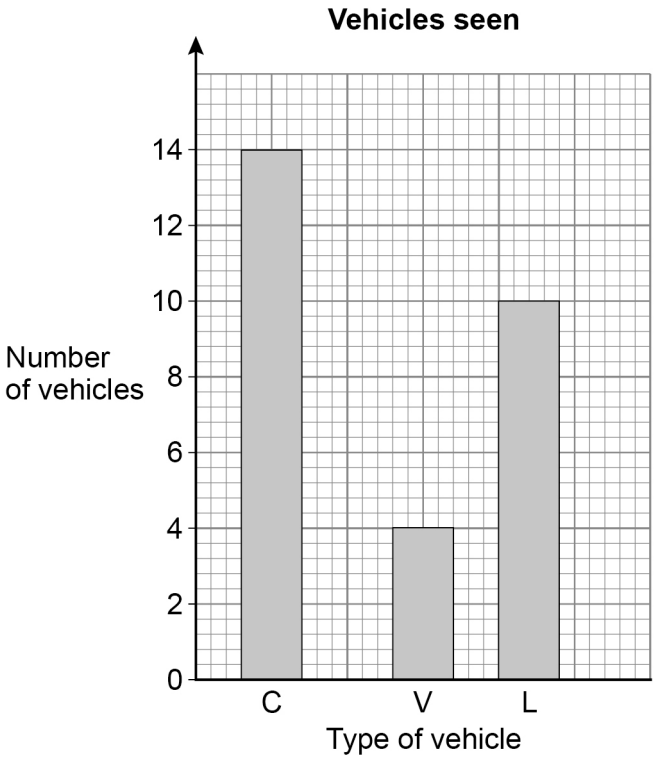
Answer _____

Do not write outside the box

11 On a journey, Laura sees 30 vehicles.

Each vehicle is a car, a van or a lorry.

She draws this bar chart.



Make **two** criticisms of her bar chart.

[2 marks]

Criticism 1 _____

_____

_____

_____

Criticism 2 _____

_____

_____

_____

5

Turn over ►

Do not write outside the box

12 A drawing has a scale of 1 : 40

On the drawing, a bedroom is a rectangle measuring 10 cm by 18 cm

A kitchen has an actual area of 300 000 cm^2

Which has the bigger actual area, the kitchen or the bedroom?

You **must** show your working.

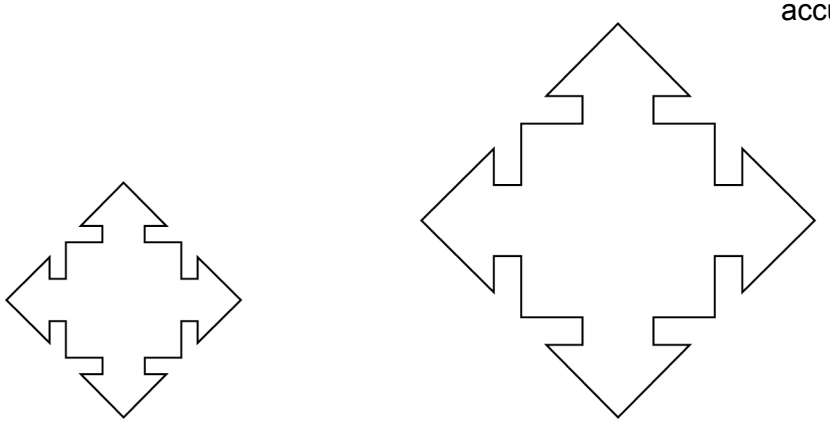
[4 marks]

Answer _____

Do not write outside the box

13 Here are two similar shapes, A and B.

Not drawn accurately



A **B**

length of edges in A : length of edges in B = 2 : 5

The perimeter of A is 210 mm

Work out the perimeter of B.

[2 marks]

Answer _____ mm

6

Turn over ►

Do not write outside the box

14 There are 135 passengers on a plane.

3 of the passengers in Business Class are flying for the first time.

In total, there are 15 passengers in Business Class.

$\frac{1}{4}$ of the passengers **not** in Business Class are flying for the first time.

14 (a) In the Venn diagram,

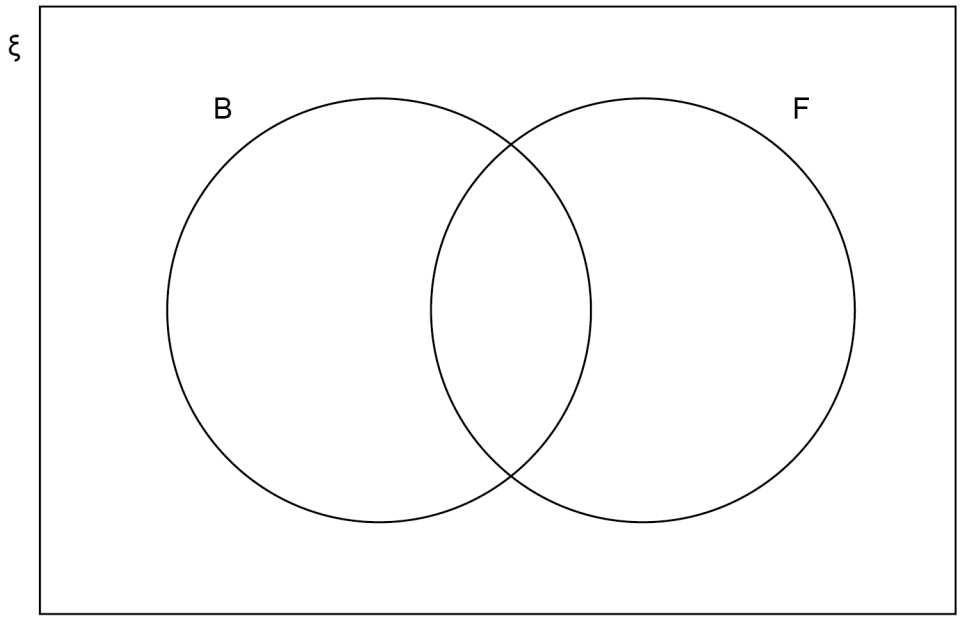
ξ = passengers on the plane

B = passengers in Business Class

F = passengers flying for the first time.

Complete the Venn diagram.

[4 marks]



Do not write outside the box

14 (b) One of the passengers is chosen at random.

Write down the probability that the passenger is in Business Class.

[1 mark]

Answer _____

15 A line has the equation $y = x + 3$

15 (a) Write down the coordinates of the point where the line intersects the y-axis.

[1 mark]

Answer (_____ , _____)

15 (b) Write down the coordinates of the point where the line intersects the x-axis.

[1 mark]

Answer (_____ , _____)

7

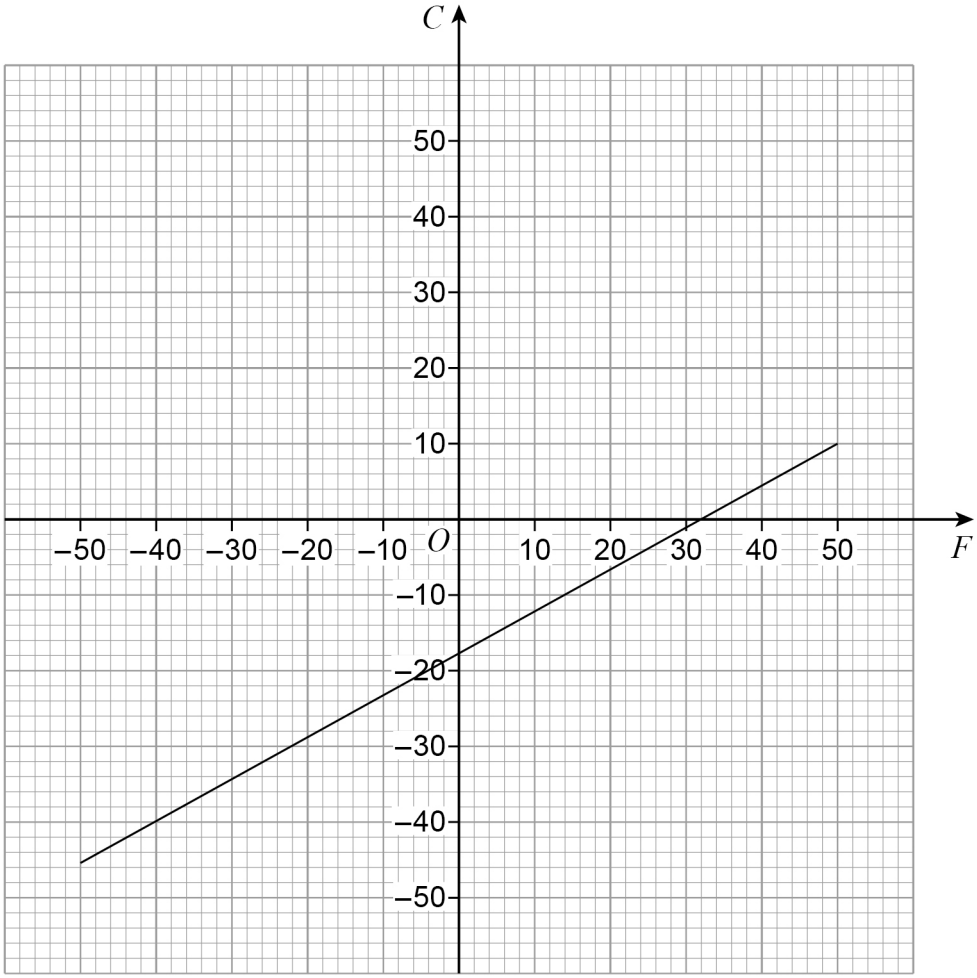
Do not write outside the box

16 The graph below is used to convert between

temperature in degrees Fahrenheit (F)

and

temperature in degrees Celsius (C).



16 (a) Use the graph to convert 40 degrees Fahrenheit into degrees Celsius.

[1 mark]

Answer _____ degrees Celsius

Do not write outside the box

At one temperature, T,

the number of degrees Celsius is **double** the number of degrees Fahrenheit.

The graph of $C = 2F$ can be drawn to help find this temperature.

16 (b) On the grid opposite, draw the graph of $C = 2F$ for values of F from –25 to 25

You may use the table to help you.

[2 marks]

F	–25		
C	–50		

16 (c) Use your graph to estimate the value of T.

Give your answer in degrees Celsius.

[2 marks]

Answer _____ degrees Celsius

Turn over for the next question

5

Do not write outside the box

17 In a bag there are 10p coins, 20p coins and 50p coins.

There are two **fewer** 20p coins than 10p coins.

There are five **more** 50p coins than 10p coins.

17 (a) Complete the table.

[1 mark]

Coin	**Number of coins**
10p	n
20p	$n - 2$
50p	

17 (b) Altogether, there are 60 coins.

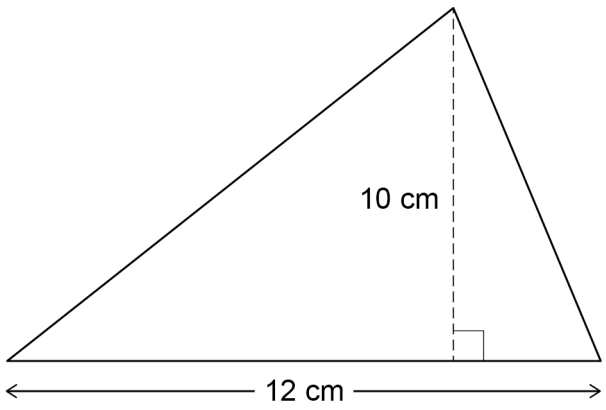
Work out the total **value** of the 20p coins.

[4 marks]

Answer £ _____

Do not write outside the box

18 A force of 180 newtons (N) is applied to the surface of this triangle.



Work out the pressure.

Use pressure = $\frac{\text{force}}{\text{area}}$

[3 marks]

Answer _____ N/cm^2

8

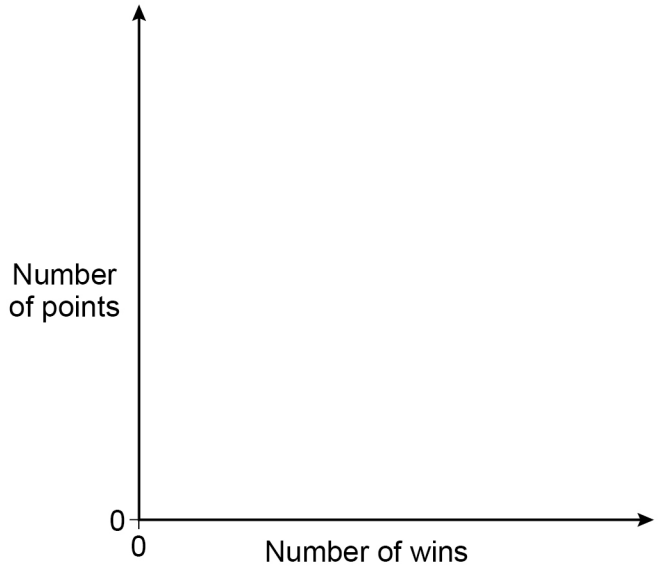
Turn over ►

Do not write outside the box

19 In a sport, the number of points is directly proportional to the number of wins.

On the axes, sketch a graph to show this relationship.

[1 mark]



Do not write outside the box

20 Using ruler and compasses, show the region inside the grid that is

less than 4 cm from *A*

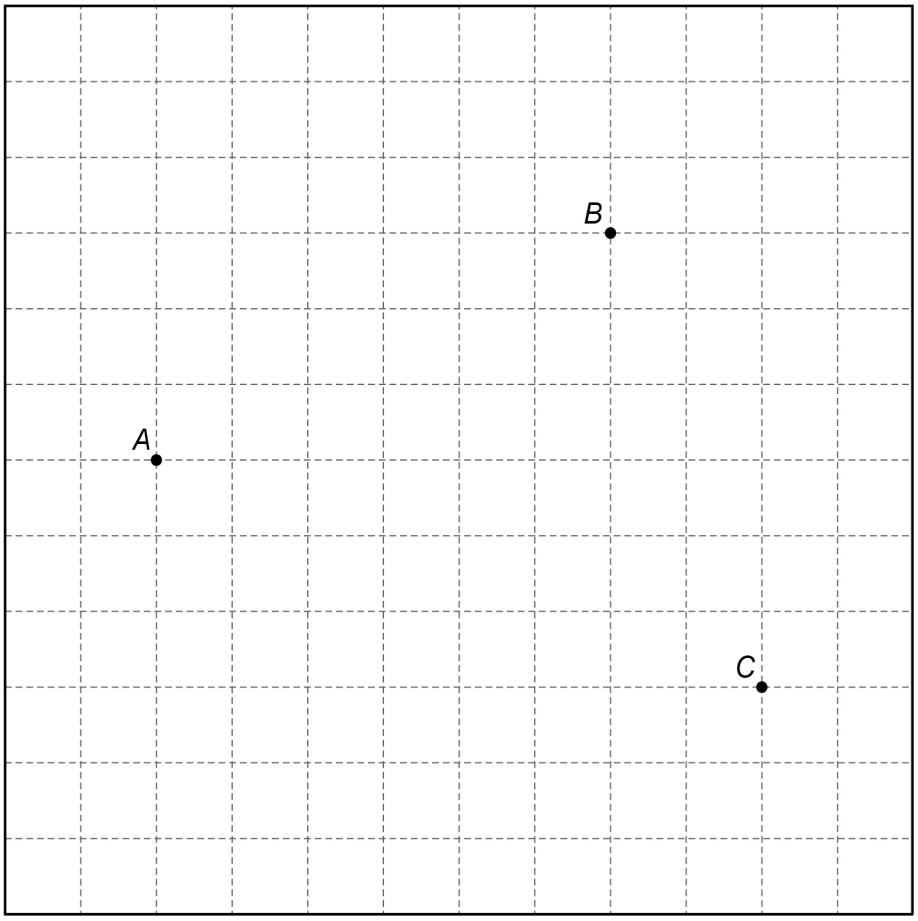
and

nearer to *B* than to *C*.

Label the region R.

Show all your construction lines.

[3 marks]



4

Turn over ►

Do not write outside the box

21 Beth drives 200 miles in 4 hours.

She drives the first 18 miles at an average speed of 36 mph

Work out her average speed for the rest of the journey.

[3 marks]

Answer _____ mph

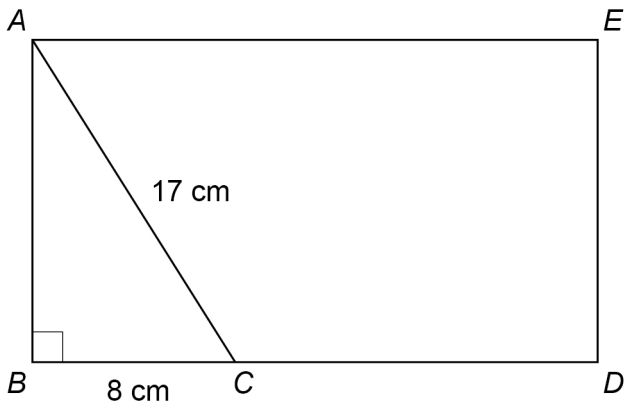
Do not write outside the box

22 The diagram shows rectangle *ABDE* and right-angled triangle *ABC*.

AC = 17 cm

BC = 8 cm

Not drawn accurately



BC : *CD* = 1 : 2

Work out the area of rectangle *ABDE*.

[4 marks]

Answer _____ cm^2

7

Turn over ►

Do not write outside the box

23 In a sport, injury time is added time played at the end of a match.

The table shows the injury time, t (minutes) played in 380 matches.

Injury time, t (minutes)	**Frequency**
$0 < t \leqslant 2$	59
$2 < t \leqslant 4$	158
$4 < t \leqslant 6$	106
$6 < t \leqslant 8$	45
$8 < t \leqslant 10$	12

23 (a) Circle the **two** words that describe the data.

[1 mark]

continuous discrete grouped ungrouped

23 (b) Which class interval contains the median?

You **must** show your working.

[2 marks]

Answer _____ $< t \leqslant$ _____

Do not write outside the box

23 (c) What percentage of the matches had **more than** 6 minutes of injury time?

[2 marks]

Answer _____ %

24 x is an integer.

$$-4 < x \leqslant 2$$

and

$$2 \leqslant x + 3 < 9$$

Work out all the possible values of x.

[3 marks]

Answer _____

8

Do not write outside the box

25 Joe and Kyle share an amount of money in the ratio $7 : n$

Joe gets 35% of the money.

Work out the value of n.

[2 marks]

Answer _____

26 Circle the reciprocal of 4

[1 mark]

–4 2 0.4 0.25

Do not write outside the box

27 $x : y = 1 : 3$

Circle the correct equation.

[1 mark]

$y = 3x$ $\quad$ $y = \frac{x}{3}$ $\quad$ $y = x - 2$ $\quad$ $y = x + 2$

28 A linear sequence starts

11 21 31 41 …

Work out an expression for the nth term of the sequence.

[2 marks]

Answer _____

END OF QUESTIONS

6

Do not write outside the box

There are no questions printed on this page

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ANSWER IN THE SPACES PROVIDED

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