AQA

Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE

MATHEMATICS

F

Foundation Tier **Paper 3 Calculator**

8300/3F

Monday 10 June 2024 **Morning**

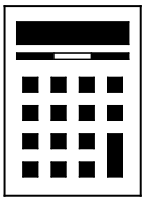
Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.

[Turn over]

MATERIALS

For this paper you must have:



- **a calculator**
- **mathematical instruments**
- **the Formulae Sheet (enclosed).**

INSTRUCTIONS

- **Use black ink or black ball-point pen. Draw diagrams in pencil.**
- **Answer ALL questions.**
- **You must answer the questions in the spaces provided. Do not write on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **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.

DO NOT TURN OVER UNTIL TOLD TO DO SO

Answer ALL questions in the spaces provided.

1 A village has four bus stops.

The bar chart, on the opposite page, shows information about the people at the bus stops at 3 pm one day.

1 (a) Two people were at the Football ground bus stop.

Show this information on the bar chart. [1 mark]

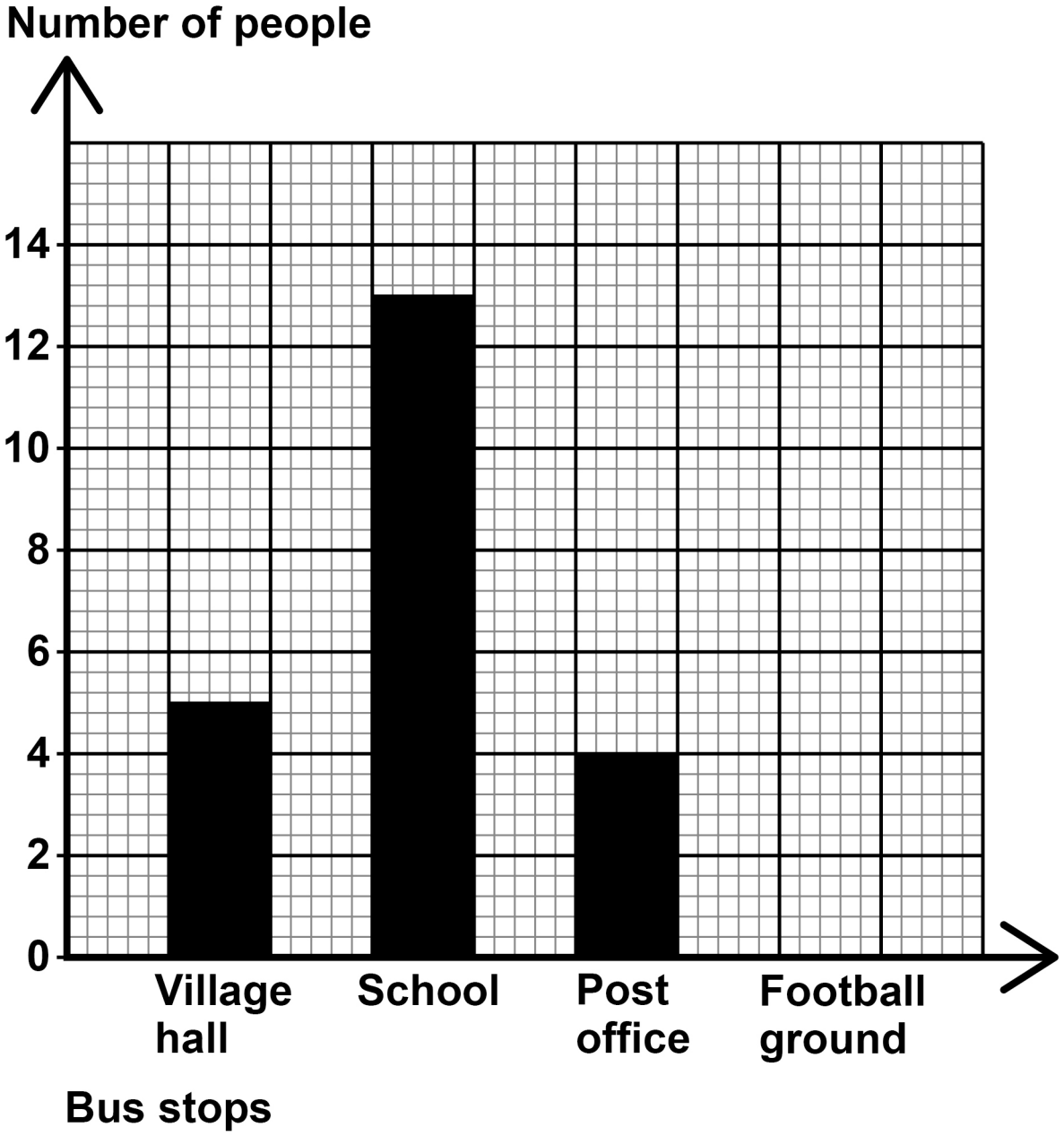
1 (b) How many MORE people were at the School bus stop than at the Post office bus stop? [1 mark]

_____

_____

Answer _____

NUMBER OF PEOPLE WAITING AT EACH BUS STOP AT 3 PM



[Turn over]

2 **Here are four temperatures in degrees C**

–5 3 –7 –1

Write the temperatures in order, starting with the COLDEST. [2 marks]

Answer

_____ _____ _____ _____

3 Here are the first three terms of a linear sequence.

5 11 17

3 (a) Write down the next term. [1 mark]

Next term _____

3 (b) Describe the term-to-term rule. [1 mark]

Term-to-term rule _____

[Turn over]

6

4 **Luca spends 71p**

He pays the exact amount with 4 coins.

List the coins he uses. [2 marks]

Answer

5 **Complete each statement using ONE of these symbols. [3 marks]**

< = >

2.54 _____ **2.508**

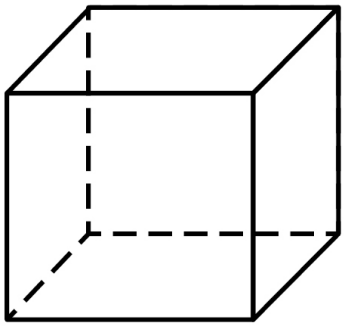
0.25 _____ $\frac{1}{4}$

2 _____ $\frac{5}{2}$

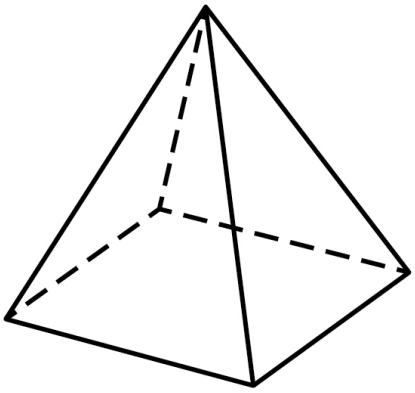
[Turn over]

6 **Here are three solids.**

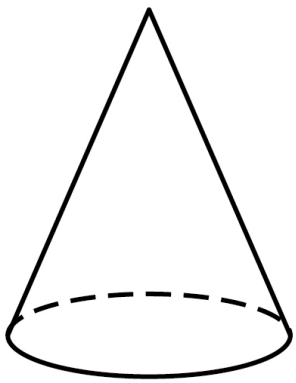
CUBE



SQUARE-BASED PYRAMID



CONE



6 (a) **How many FACES does the cube have? [1 mark]**

Answer _____

6 (b) **How many EDGES does the square-based pyramid have? [1 mark]**

Answer _____

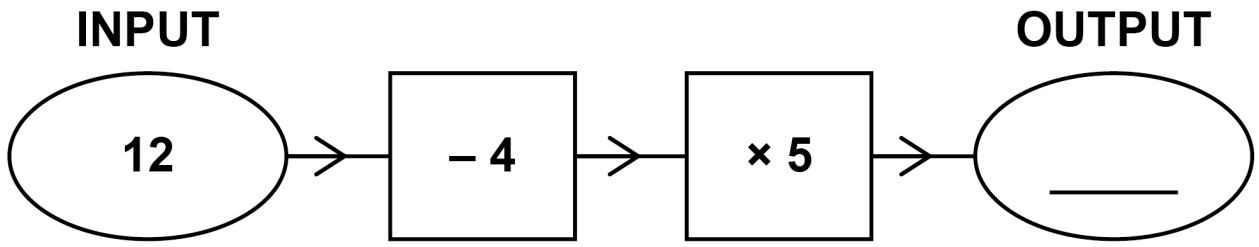
6 (c) **How many VERTICES does the cone have? [1 mark]**

Answer _____

[Turn over]

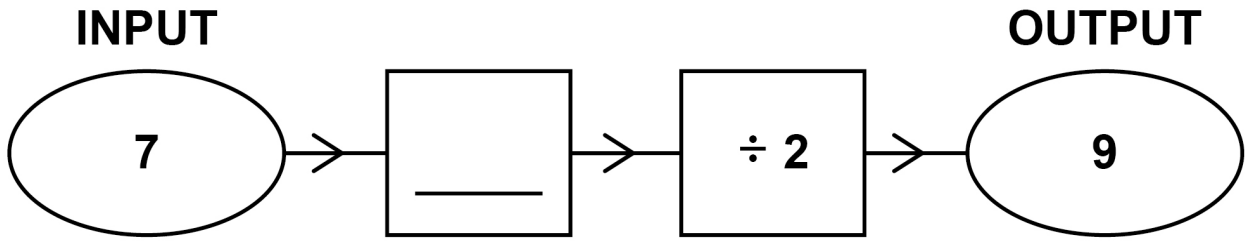
8

7 (a) **Here is a number machine.**



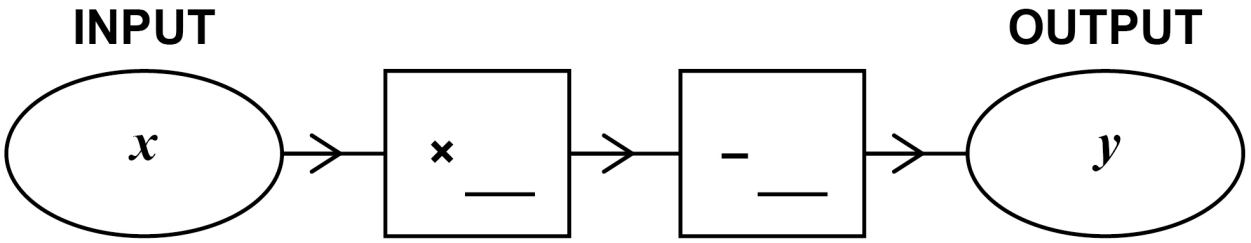
Complete the number machine. [1 mark]

7 (b) **Here is a different number machine.**



Complete the number machine. [1 mark]

7 (c) **Here is a different number machine.**



When $x = 5$ $y = 13$

and

when $x = 10$ $y = 28$

Complete the number machine. [2 marks]

4

8

- **A pack of pegs costs 40p**
- **A bar of soap costs £2.20**
- **A basket costs £7**

Dan buys TWO packs of pegs, ONE bar of soap and ONE basket.

What fraction of the total cost is the cost of the basket? [3 marks]

Answer _____

9 Calculate $\sqrt{625} + 7^3$ [2 marks]

Answer _____

[Turn over]

10 8400 fans go to a rugby match.

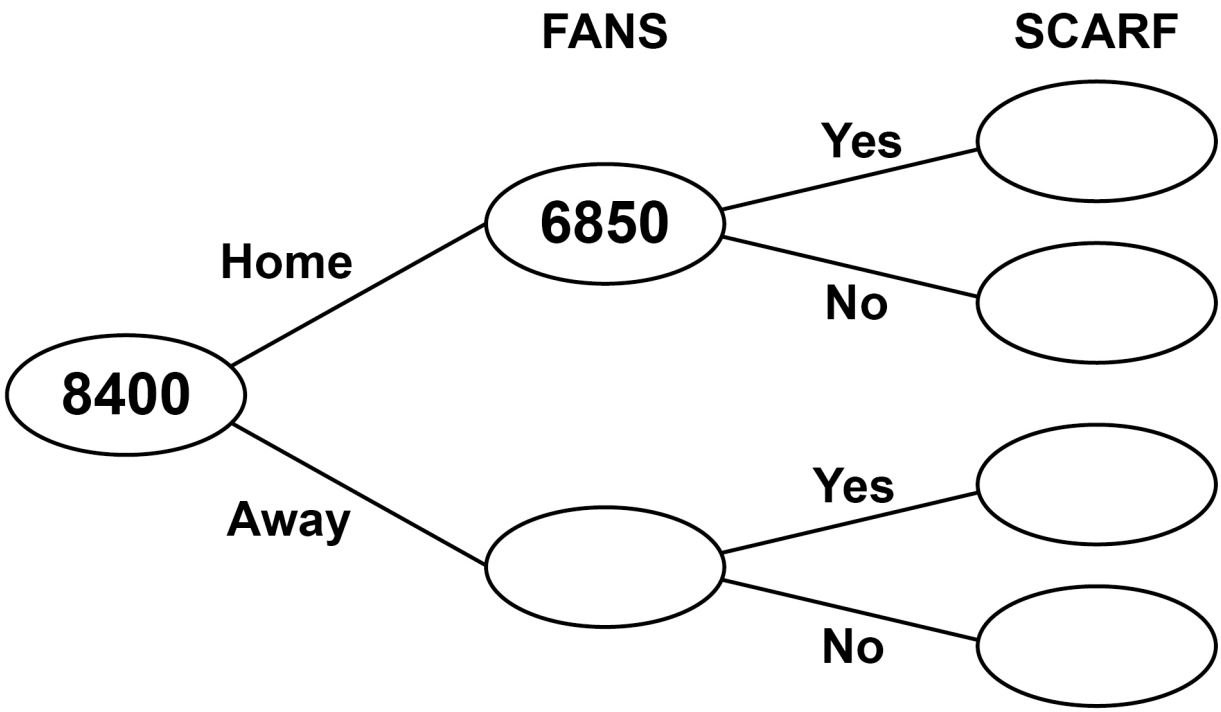
6850 of the fans support the HOME team.

The remaining fans support the AWAY team.

20% of the HOME fans wear a scarf.

2319 of all the fans wear a scarf.

Complete the frequency tree. [5 marks]



10

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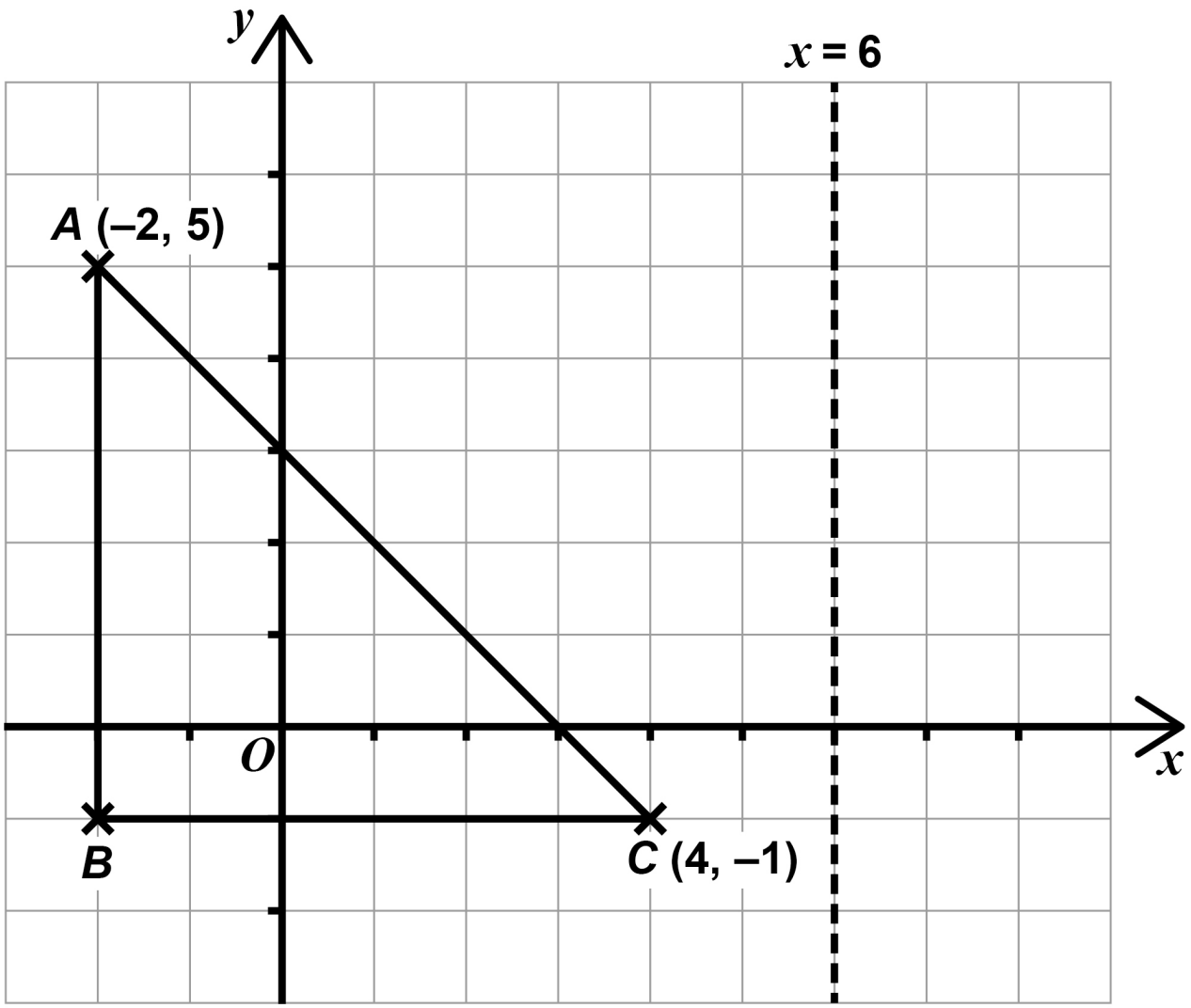
[Turn over]

11



11 (a) **Work out the coordinates of *B*. [1 mark]**

Answer (_____ , _____)

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

Work out the coordinates of *D*. [1 mark]

Answer (_____ , _____)

[Turn over]

12 Liz records the distance of some runs and the time each run takes.

DISTANCE (km)	3	4	5.5	6	6.5	7	8	8.5
TIME (min)	14	17	22	23	26	31	38	42

The scatter graph, on the opposite page, shows SOME of the information from the table.

12 (a) Complete the graph by adding the missing LABEL and plotting the TWO missing points. [2 marks]

12 (b) Describe the correlation shown in the scatter graph. [2 marks]

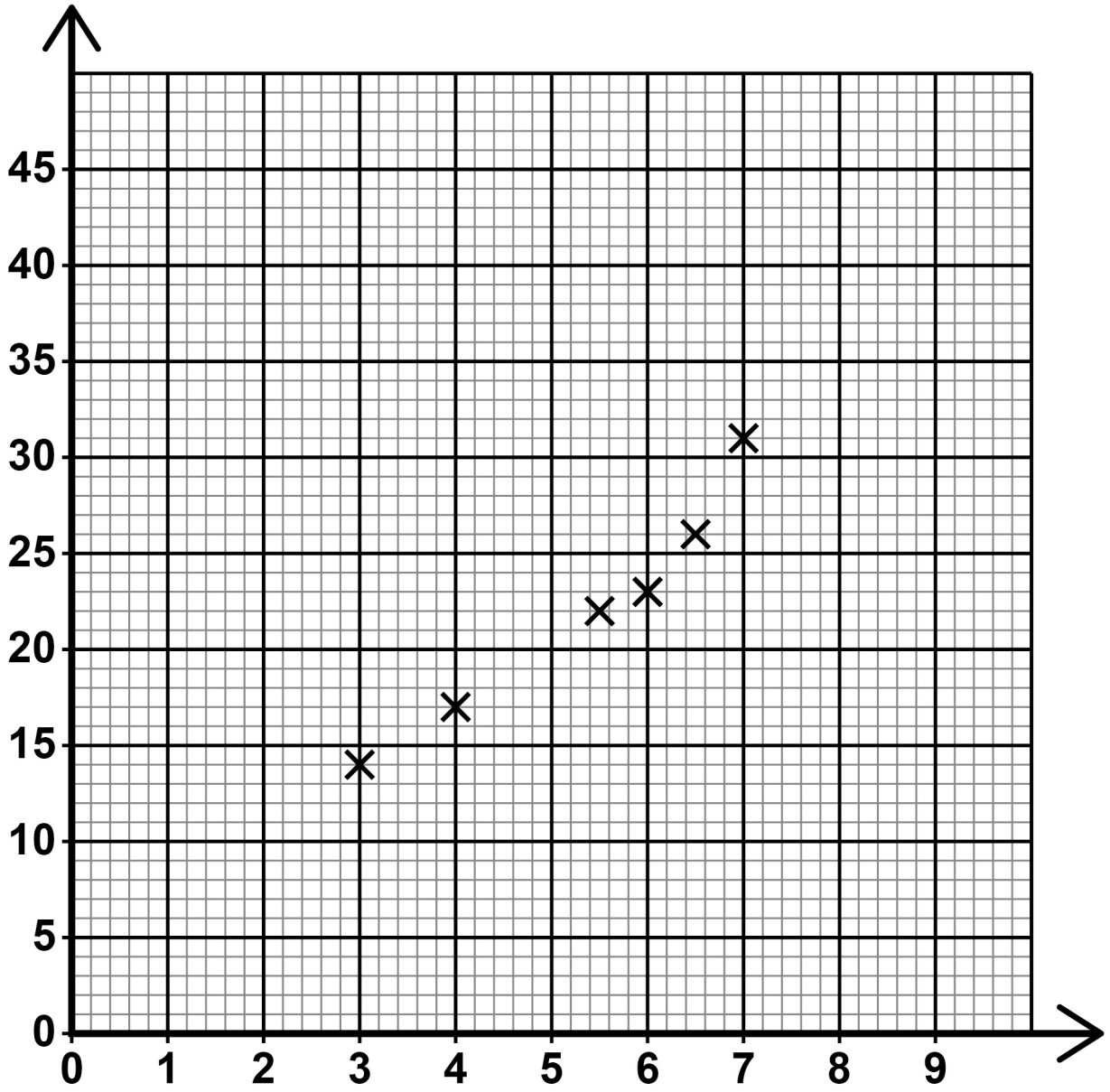
Type of correlation _____

_____

Strength of correlation _____

_____

RUNNING DISTANCES AND TIME TAKEN



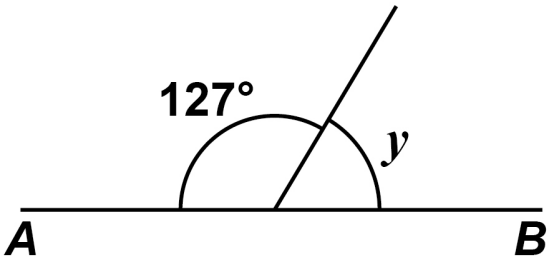
_____

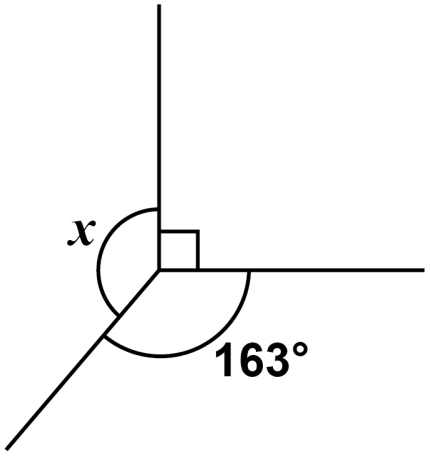
[Turn over]

6

13 ***AB*** **is a straight line.**

The diagram is not drawn accurately.





Is y **half of** x **?**

Tick a box.

☐ **Yes**

☐ **No**

Show working to support your answer.
[3 marks]

[Turn over]

14 **Multiply out** $3(2x + 8)$ **[2 marks]**

Answer _____

15 **Complete these statements. [3 marks]**

$\_\_\_\_\_ + 5x = 9x$

$y \times \_\_\_\_\_ = y^2$

$\_\_\_\_\_ - 2t = t$

[Turn over]

8

16 **Tins of beans are sold in shop A and shop B.**

SHOP A

1 tin 64p

Buy 4 tins for the price of 3 tins

SHOP B

1 tin 62p

Pack of 3 tins £1.70

10% reduction in price on all PACKS

At which shop is it cheaper to buy 20 tins?

State how much cheaper. [5 marks]

Shop _____

Cheaper by _____

[Turn over]

17 (a) **There are 30 students in a class.**

12 of the students have school lunch.

Work out the ratio

students having school lunch :
students not having school lunch

Give your answer in its simplest form.
[2 marks]

_____

_____

_____

Answer _____ : _____

17 (b) **In a different class**

students wearing glasses :
students not wearing glasses = 3 : 8

What fraction of students in this class wear glasses? [1 mark]

Answer _____

17 (c) **The ratio 4 : 9 is written in the form 1 : n**

Work out the value of n. [1 mark]

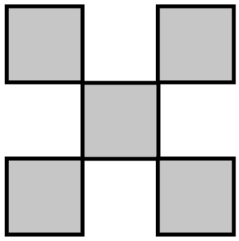
n = _____

[Turn over]

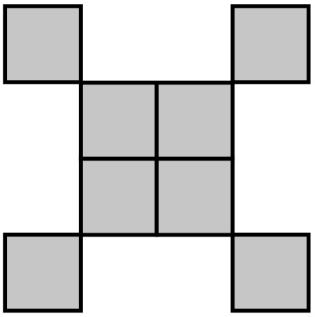
9

18 **Here are the first three Patterns in a sequence made up of small squares.**

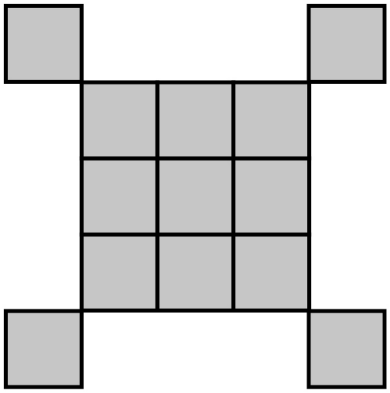
Pattern 1



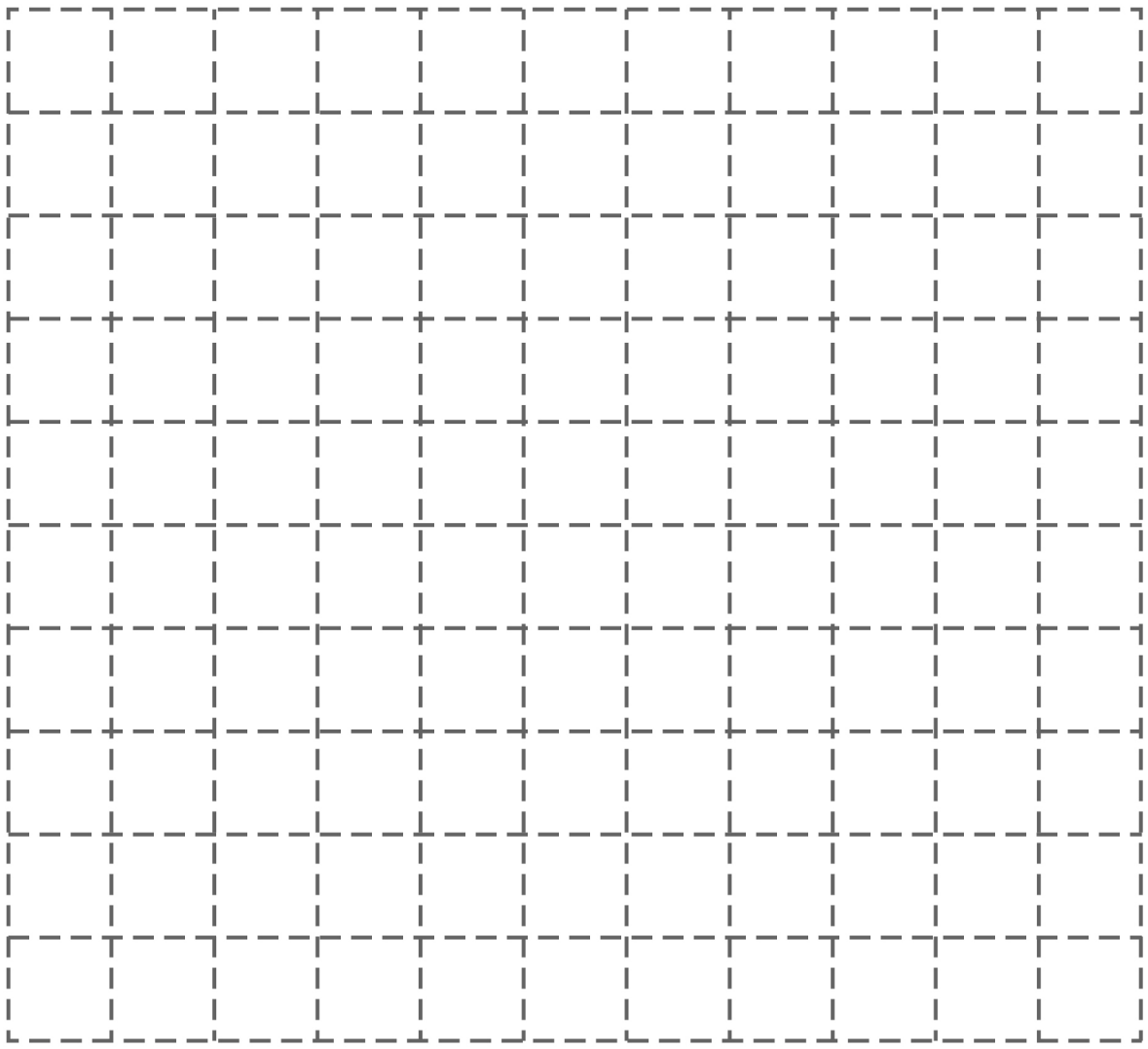
Pattern 2



Pattern 3



18 (a) On the grid, draw Pattern 4 [1 mark]



[Turn over]

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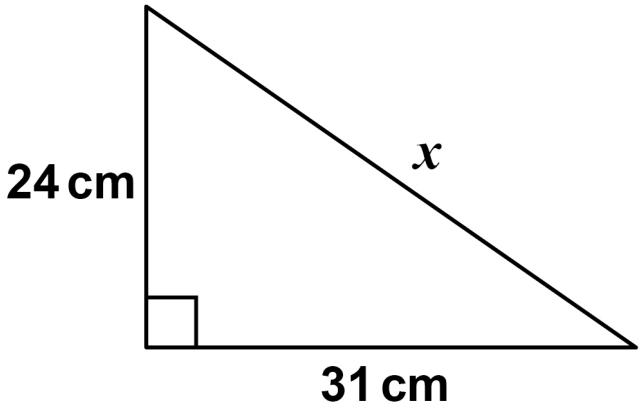
18 (b) The expression for the number of small squares in Pattern n is $n^2 + 4$

Work out the least value of n for which the number of small squares is greater than 500
[1 mark]

n = _____

[Turn over]

19 **The diagram is not drawn accurately.**



Use Pythagoras' theorem to work out the value of x.

Give your answer as a decimal. [3 marks]

Answer _____ cm

[Turn over]

5

20 **Rick claims most of the flats in his 8-floor building are energy efficient.**

He samples 45 flats from floors 1 to 5

Give a reason why this sample may NOT be useful in testing Rick's claim. [1 mark]

21 $3(x - 1) \equiv 3x - 3$ **is an identity.**

Tick ONE box. [1 mark]

☐ **It is true for ALL values of** x

☐ **It is true for SOME values of** x

☐ **It is true for NO values of** x

[Turn over]

22 **Kay hires a digger.**

The cost per day is

- **£24.50 for the first 5 days**
- **reduced by 20% for day 6**
- **the same as day 6 for day 7 onwards.**

The TOTAL cost is £259.70

For how many days did Kay hire the digger?

You MUST show your working. [5 marks]

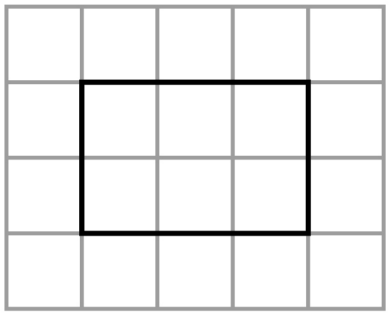
Answer _____

[Turn over]

7

23 **The front elevation of a cuboid is shown on this centimetre grid.**

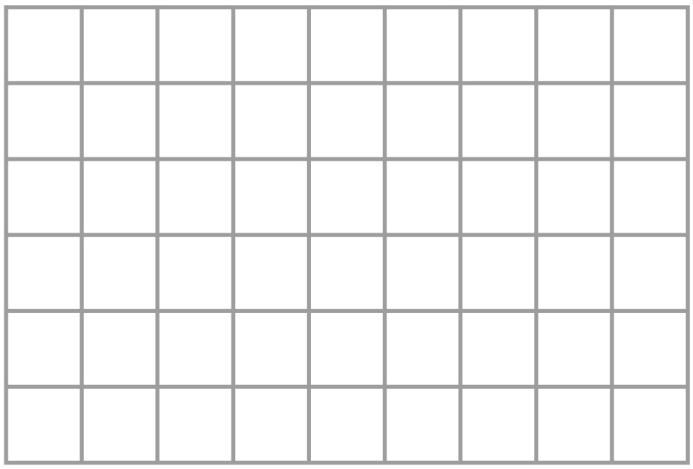
FRONT ELEVATION



The volume of the cuboid is 42 cm^3

Draw the SIDE ELEVATION on this centimetre grid. [2 marks]

SIDE ELEVATION



[Turn over]

24 (a) **On Monday, Larrs swims 50 metres in 40 SECONDS at a constant speed.**

On Tuesday, Larrs swims 1.5 kilometres.

Assume he swims at the same constant speed as on Monday.

How many MINUTES does he swim for on Tuesday? [5 marks]

Answer _____ minutes

24(b) In fact, on Tuesday Larrs swims at a slower constant speed than on Monday.

What does this mean about the number of minutes he swims for on Tuesday?

Tick the correct box. [1 mark]

☐ It is less than the answer to part (a)

☐ It is the same as the answer to part (a)

☐ It is greater than the answer to part (a)

☐ It is not possible to say

[Turn over]

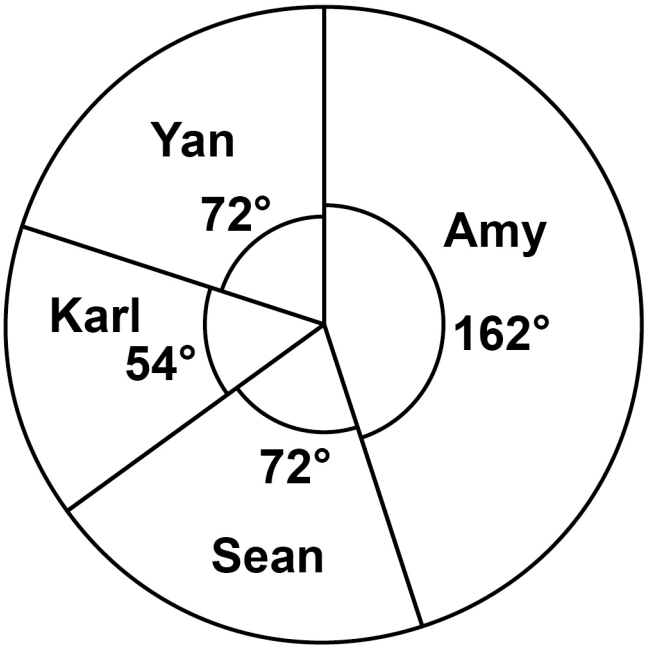
8

25 **Four people are taking part in a television talent show.**

Here are Amy's marks from the 6 judges.

8 9 9 6 9 10

The pie chart represents the phone vote.



Amy's total score is found by

4 × the MEAN of her marks

+

her PERCENTAGE of the phone vote

Work out Amy's total score. [4 marks]

Answer _____

4

26 House prices on a street increase by 5.1% each year.

Show that after 14 years the house prices on the street will be at least double. [2 marks]

27 **Town A has**

a population of 84 000

an area of 7 SQUARE MILES.

Town B has a population density of 4695 people per SQUARE KILOMETRE.

$$\text{Population density} = \frac{\text{population}}{\text{area}}$$

Which town has the greater population density?

Use 1 square mile = 2.6 square kilometres

Tick a box.

☐ **Town A**

☐ **Town B**

Show working to support your answer. [3 marks]

END OF QUESTIONS

5

Additional page, if required.

Write the question numbers in the left-hand margin.

Additional page, if required.

Write the question numbers in the left-hand margin.

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For Examiner's Use	
Pages	Mark
4–7	
8–11	
12–13	
14–16	
18–21	
22–25	
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30–35	
36–39	
40–43	
44–46	
47–49	
TOTAL	