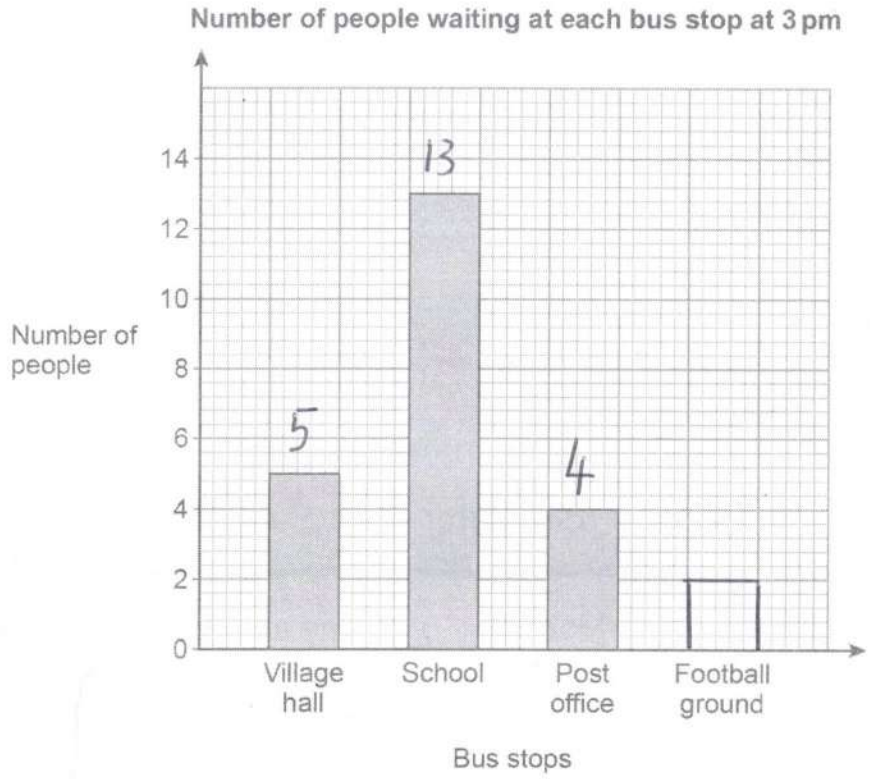
AQA - F - Jun'24 - P1

Do not write outside the box

Answer **all** questions in the spaces provided.

1 A village has four bus stops.

The bar chart 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]

13 - 4

Answer 9

Do not write outside the box

2 Here are four temperatures in degrees C

–5	3	–7	–1

Write the temperatures in order, starting with the **coldest**.

[2 marks]

Answer -7 -5 -1 3

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

5 11 17 +6

3 (a) Write down the next term.

[1 mark]

Next term 23

3 (b) Describe the term-to-term rule.

[1 mark]

Term-to-term rule Add 6

6

Do not write outside the box

4 Luca spends 71p

He pays the exact amount with 4 coins.

List the coins he uses.

[2 marks]

Answer 50p 10p 10p 1p

5 Complete each statement using **one** of these symbols.

$<$ $=$ $>$

[3 marks]

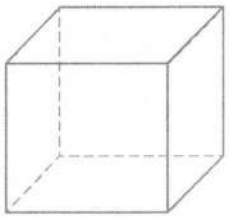
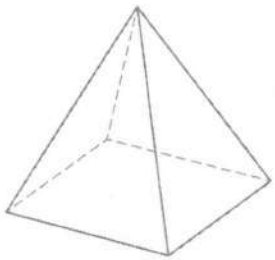
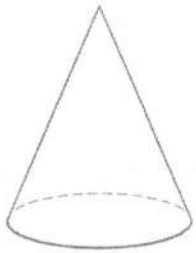
2.54 $>$ 2.508

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

2 $<$ $\frac{5}{2}$

Do not write outside the box

6 Here are three solids.

Cube	Square-based pyramid	Cone
		

6 (a) How many **faces** does the cube have?

[1 mark]

Answer 6

6 (b) How many **edges** does the square-based pyramid have?

[1 mark]

Answer 8

6 (c) How many **vertices** does the cone have?

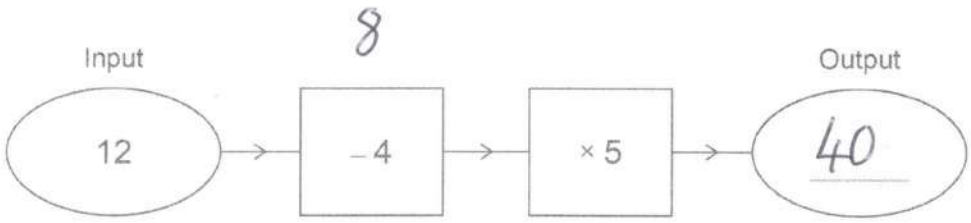
[1 mark]

Answer 1

8

Do not write outside the box

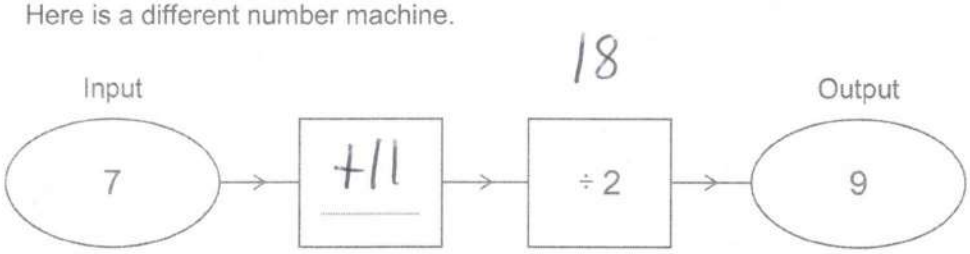
7 (a) Here is a number machine.



Complete the number machine.

[1 mark]

7 (b) Here is a different number machine.

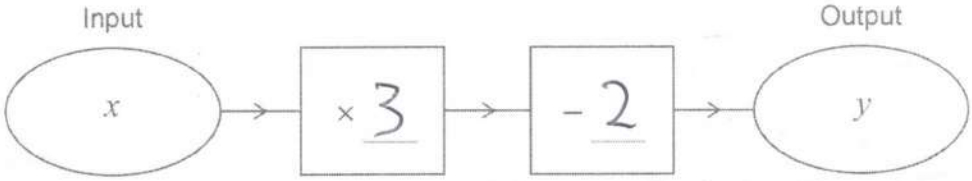


Complete the number machine.

[1 mark]

Do not write outside the box

7 (c) Here is a different number machine.



When $x = 5$ $y = 13$
and
when $x = 10$ $y = 28$

) 5) diff = 15

Complete the number machine.

[2 marks]

Turn over for the next question

4

Do not write outside the box

8 • A pack of pegs costs 40p x 2 = 80
• 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]

7+2·20+0·80 =10

Answer 7/10

9 Calculate $\sqrt{625} + 7^3$

[2 marks]

25 + 343

Answer 368

Do not write outside the box

10 8400 fans go to a rugby match.

6850 of the fans support the **Home** team.

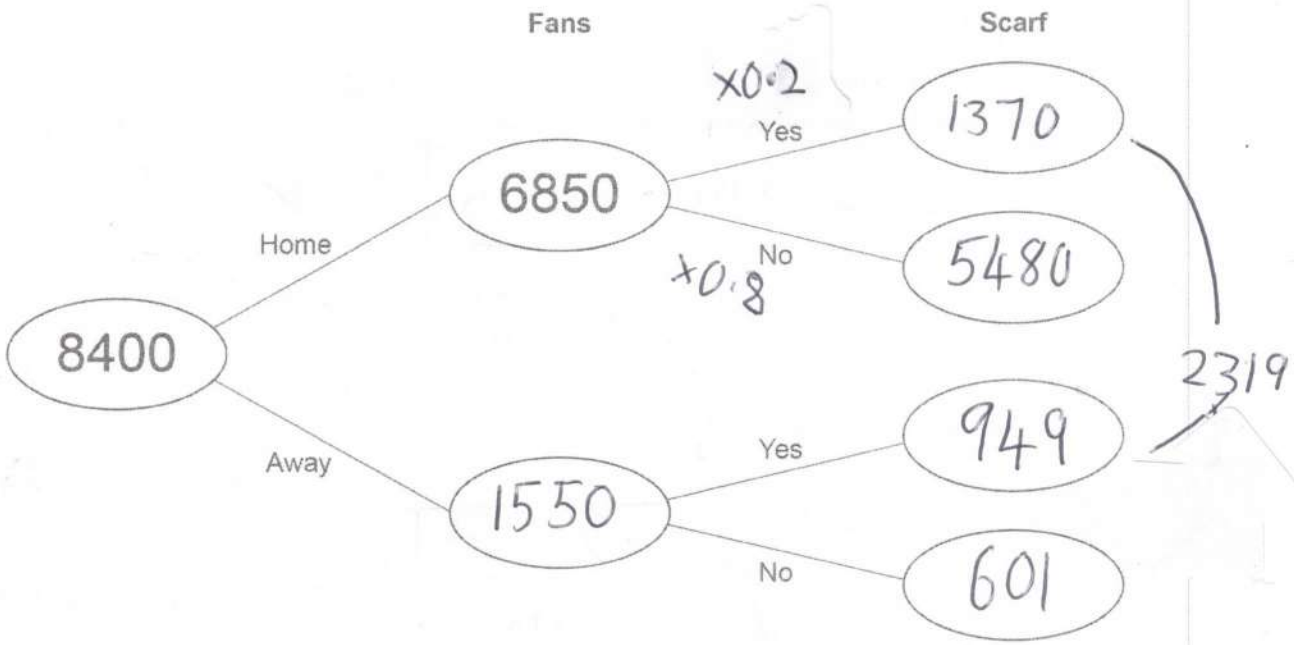
The remaining fans support the **Away** team.

20% of the **Home** fans wear a scarf.

2319 of all the fans wear a scarf.

Complete the frequency tree.

[5 marks]

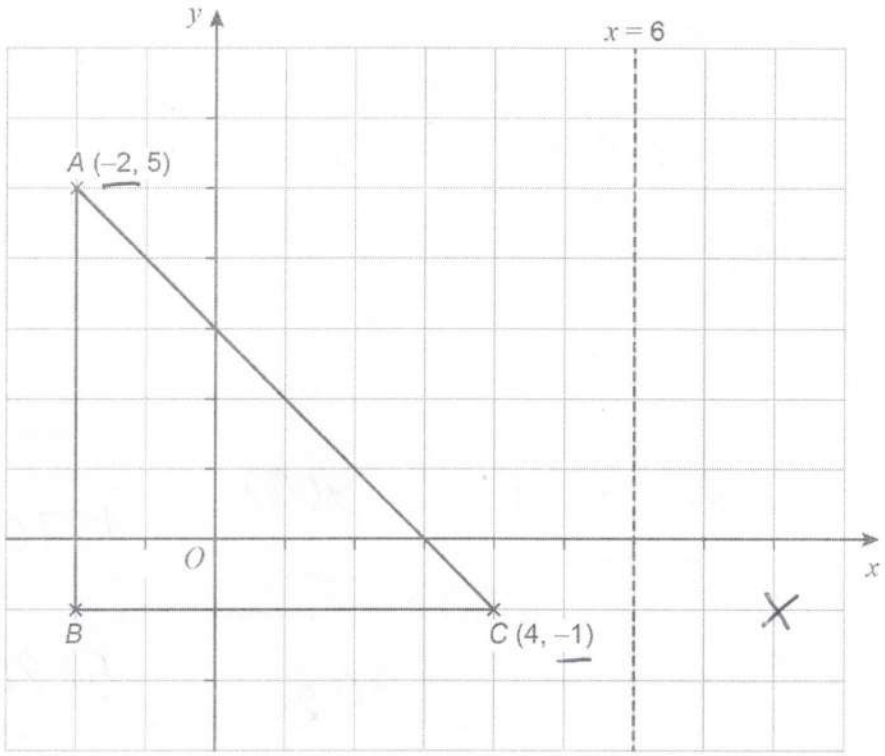


Turn over for the next question

10

Do not write outside the box

11



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

[1 mark]

Answer (-2 , -1)

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

Work out the coordinates of *D*.

[1 mark]

Answer (8 , -1)

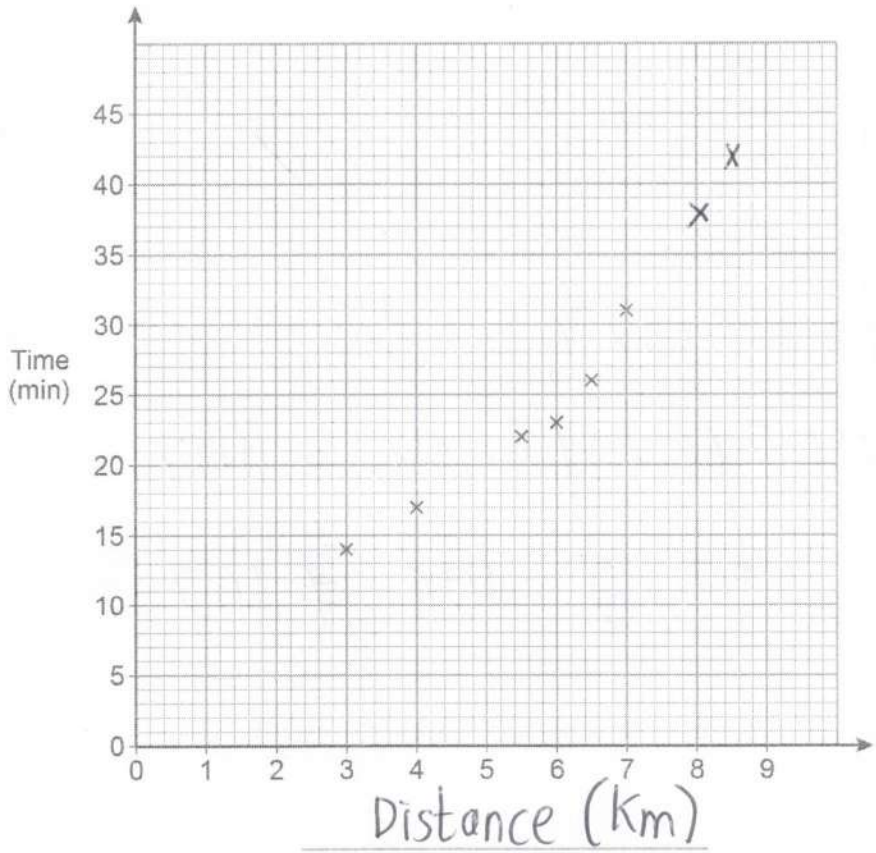
Do not write outside the box

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 shows **some** of the information from the table.

Running distances and time taken



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 positive

Strength of correlation strong

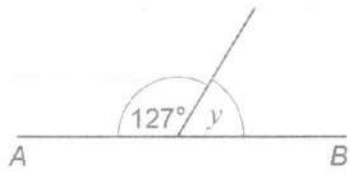
6

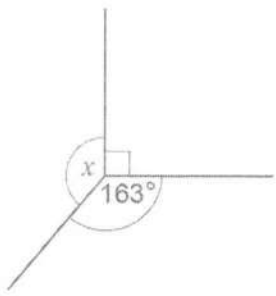
Turn over ▶

Do not write outside the box

13 *AB* is a straight line.

Not drawn accurately





Is y half of x ?

Tick a box.

Yes ☐ No ☑

Show working to support your answer.

[3 marks]

$y = 180 - 127 = 53$

$x = 360 - 163 - 90 = 107$

$53 \times 2 = 106 \neq 107$

Do not write outside the box

14 Multiply out $3(2x + 8)$

[2 marks]

Answer $6x + 24$

15 Complete these statements.

[3 marks]

$4x + 5x = 9x$

$y \times y = y^2$

$3t - 2t = t$

Turn over for the next question

8

Do not write outside the box

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

Shop A	**Shop B**
1 tin 64p	1 tin 62p
Buy 4 tins for the price of 3 tins	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]

4 tins cost

3 x 64 = 192p

20 tins

= 5 x 192

= 960p

= £9.60

3 tins = 1.70 x 0.9

= 1.53

18 tins = 1.53 x 6

= 9.18

2 tins = 1.24

20 tins = 9.18 + 1.24

= £10.42

10.42 - 9.60

Shop A Cheaper by £0.82

Do not write outside the box

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]

12 : 18

6 : 9

Answer 2 : 3

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 $\frac{3}{11}$

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

Work out the value of n.

[1 mark]

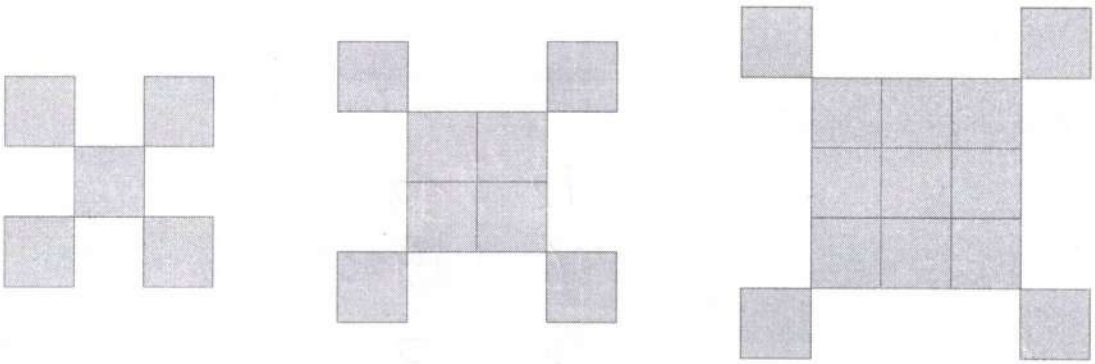
÷4 ÷4

n = 2·25

9

Do not write outside the box

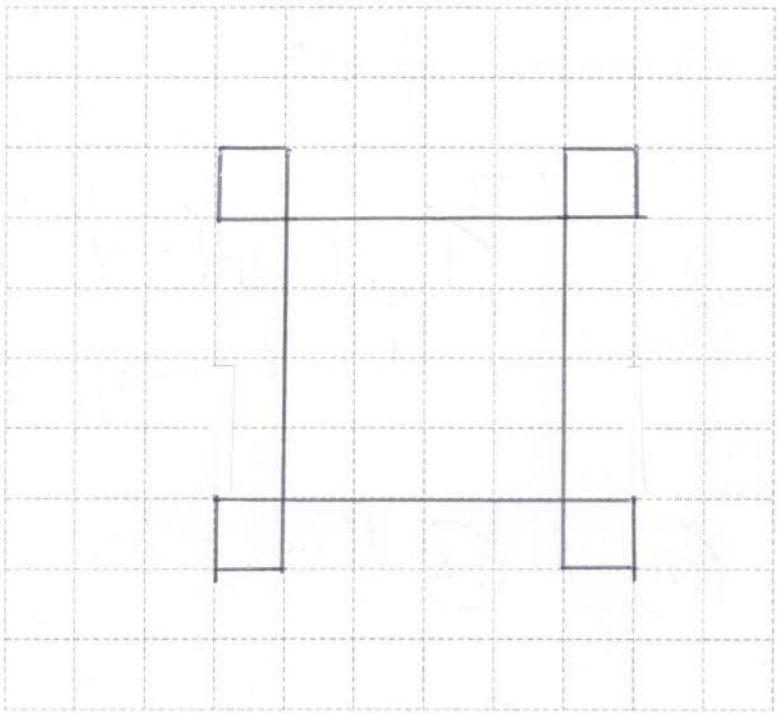
18 Here are the first three Patterns in a sequence made up of small squares.



Pattern 1 Pattern 2 Pattern 3

18 (a) On the grid, draw Pattern 4

[1 mark]



Do not write outside the box

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

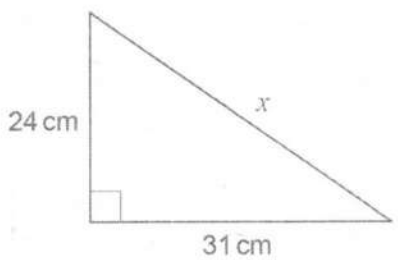
[1 mark]

$\sqrt{500-4} = 22.2...$

$n =$ 23

19

Not drawn accurately



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

Give your answer as a decimal.

[3 marks]

$24^2 + 31^2 = 1537$

$\sqrt{1537} = 39.204...$

Answer 39.2 cm

5

Do not write outside the box

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]

Needs to sample flats from all 8 floors

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

Do not write outside the box

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]

$24.5 \times 5 = 122.5$

$24.5 \times 0.8 = 19.6$

$259.70 - 122.5 = 137.2$

$137.2 \div 19.6 =$ 7 more days

$7 + 5$

Answer 12

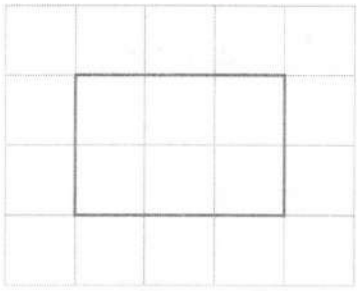
Turn over for the next question

7

Do not write outside the box

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

Front elevation

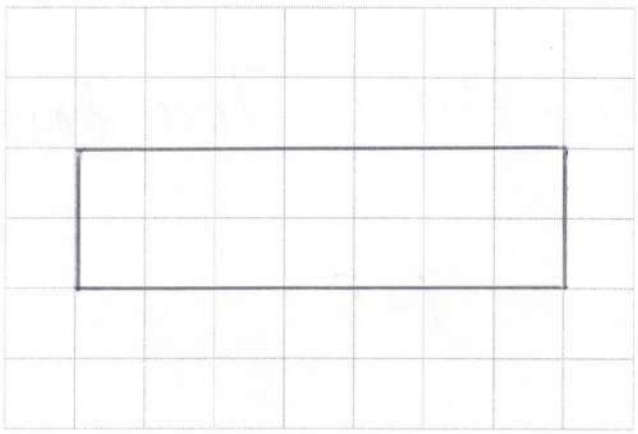


The volume of the cuboid is 42 cm^3 $3 \times 2 \times 7$

Draw the **side elevation** on this centimetre grid.

[2 marks]

Side elevation



Do not write outside the box

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]

1.5km = 1500m

x30 ↑ 50m = 40secs

x30 ↳ 1200secs

1200 ÷ 60

Answer 20 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

8

Do not write outside the box

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

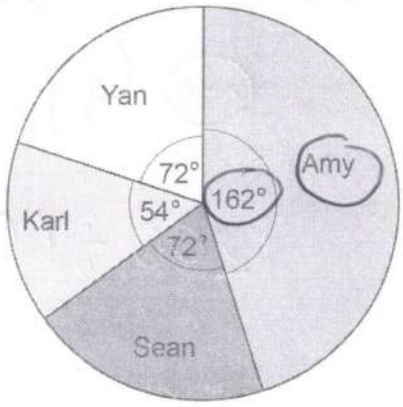
Here are Amy's marks from the 6 judges.

8	9	9	6	9	10

$8+9+9+6+9+10=51$

The pie chart represents the phone vote.

$\frac{51}{6}=8.5$



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]

Do not write outside the box

$\% \quad \frac{162}{360} \times 100 = 45$

$45 + (4 \times 8{\cdot}5)$

Answer 79

Turn over for the next question

4

Do not write outside the box

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]

$X 1.051^{14} = 2.006...$

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]

$A = \frac{84000}{7 \times 2.6} = 4615.38...$

$B = 4695$

END OF QUESTIONS

5