

Instructions

Answers



This means write down your answer or show your working and your answer.

Calculators

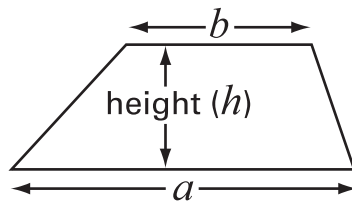


You **may** use a calculator in this test.

Formulae

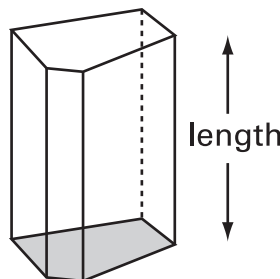
You might need to use these formulae.

Trapezium



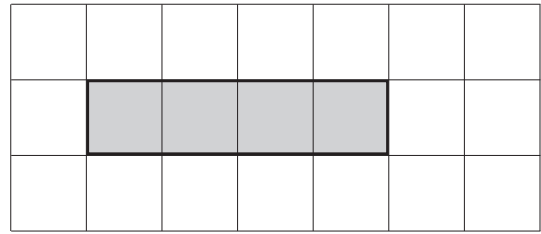
$$\text{Area} = \frac{(a+b)}{2} \times h$$

Prism



$$\text{Volume} = \text{area of cross-section} \times \text{length}$$

1. The shaded rectangle has
an **area** of 4cm^2
and a **perimeter** of 10cm .



- (a) Look at the cross-shape.

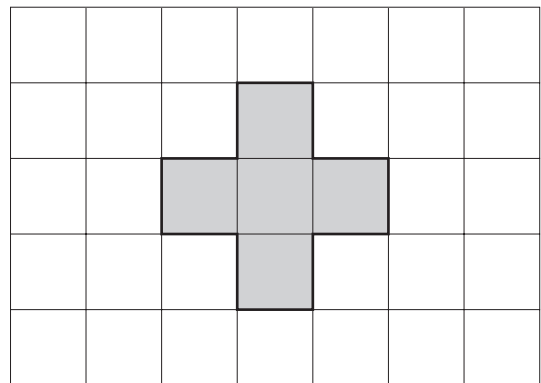
Fill in the gaps below.

The cross-shape has



an **area** of cm^2

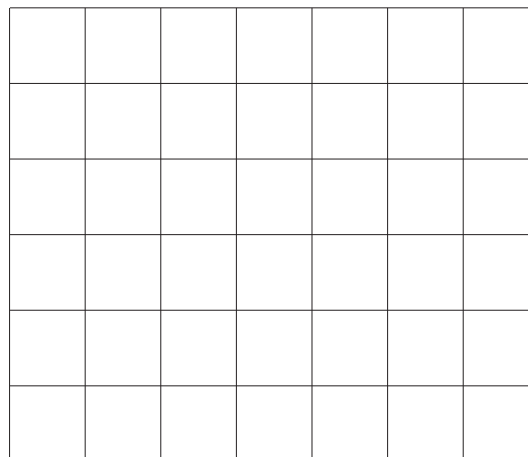
and a **perimeter** of cm .



.

.
2 marks

- (b) Draw a shape with an **area** of 6cm^2



.
1 mark

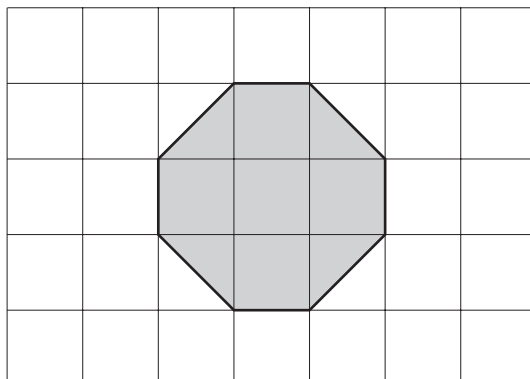
- (c) What is the **perimeter** of your shape?



. cm

.
1 mark

(d) Look at the octagon.



What is the area of the octagon?



..... cm^2

1 mark

(e) Explain how you know that the perimeter of the octagon is **more than 8cm**.



1 mark



2. A class has some gold tokens and some silver tokens.
The tokens are all the same size.

- (a) The teacher puts **4 gold tokens** and **1 silver token** in a bag.



Leah is going to take one token out of the bag without looking.
She says:

There are two colours, so it is **just as likely**
that I will get a gold token as a silver token.

Explain why Leah is **wrong**.



1 mark

- (b) How many **more silver** tokens should the teacher put in the bag to make it just as likely that Leah will get a gold token as a silver token?



.....

1 mark

- (c) Jack has a different bag with **8** tokens in it.

It is **more likely** that Jack will take a gold token than a silver token from his bag.

How many **gold** tokens might there be in Jack's bag?



.....

1 mark

3. A book shows two ways to change $^{\circ}\text{C}$ to $^{\circ}\text{F}$

exact rule

multiply the $^{\circ}\text{C}$ temperature by 1.8
then add 32

approximate rule

double the $^{\circ}\text{C}$ temperature
then add 30

- (a) Fill in the gaps.



Using the **exact** rule, 25°C is $^{\circ}\text{F}$

.
1 mark

Using the **approximate** rule, 25°C is $^{\circ}\text{F}$

.
1 mark

- (b) Fill in the gaps.



Using the **exact** rule, 0°C is $^{\circ}\text{F}$

Using the **approximate** rule, 0°C is $^{\circ}\text{F}$

.
1 mark

- (c) Show that at 10°C , the exact rule and the approximate rule give the same answers.



.

.
2 marks



4. (a) A club wants to take **3000 people** on a journey to London.

The club secretary says:

We can go in coaches.
Each coach can carry **52 people**.

How many coaches do they need for the journey?

Show your working.



.....

..... coaches

.....
2 marks

- (b) Each coach costs **£420**

What is the **total cost** of the coaches?



£

.....
1 mark

- (c) How much is each person's share of the cost?

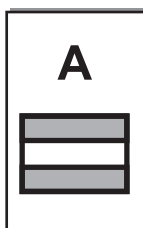
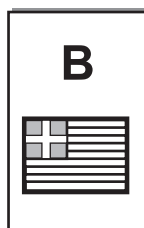
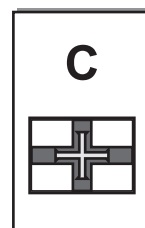
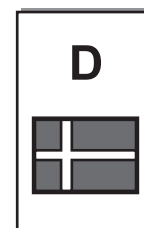


£

.....
1 mark

5. In each box of cereal there is a free gift of a card.
You cannot tell which card will be in a box. Each card is equally likely.

There are **four** different cards: A, B, C or D



- (a) **Zoe** needs card **A**
Her brother **Paul** needs cards **C** and **D**
They buy one box of cereal.

What is the probability that the card is one that **Zoe** needs?



.....

1 mark

What is the probability that the card is one that **Paul** needs?



.....

1 mark

- (b) Then their mother opens the box.
She tells them the card is **not card A**
Now what is the probability the card is one that **Zoe** needs?



.....

1 mark

What is the probability that the card is one that **Paul** needs?

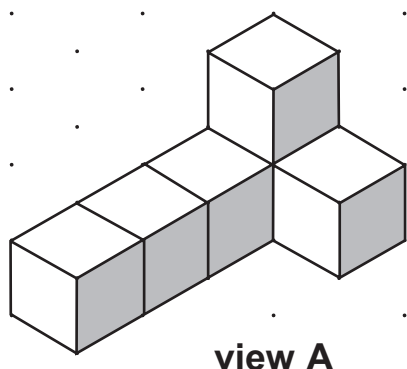
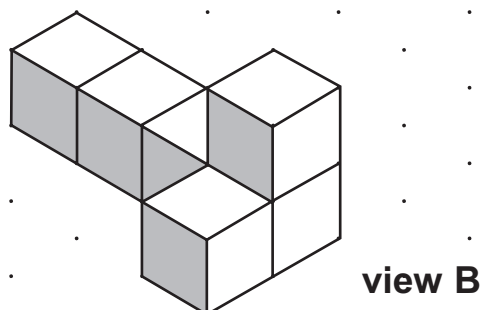


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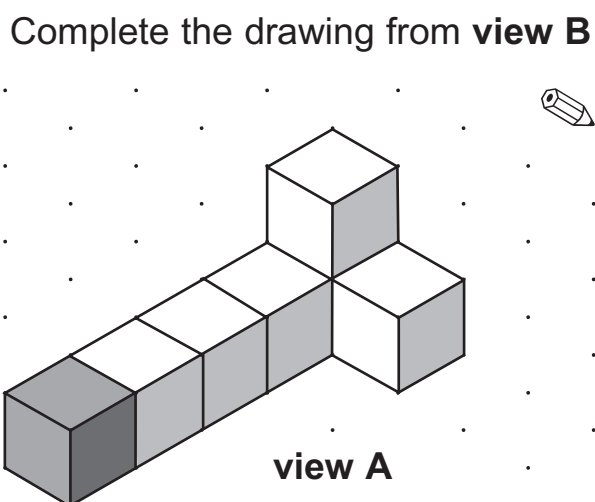
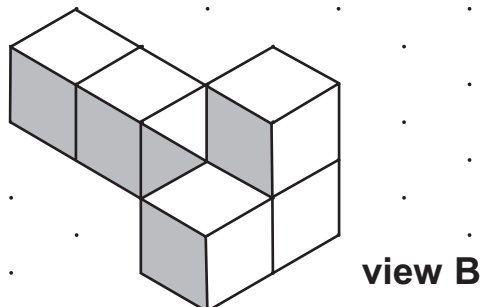
1 mark



6. I make a model with 6 cubes.
The drawings show my model from **different views**.



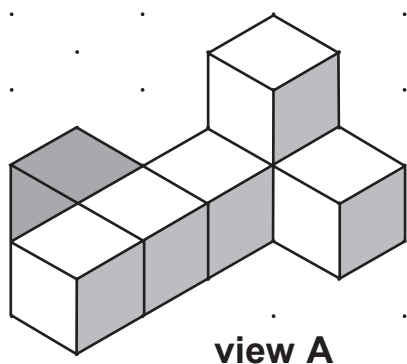
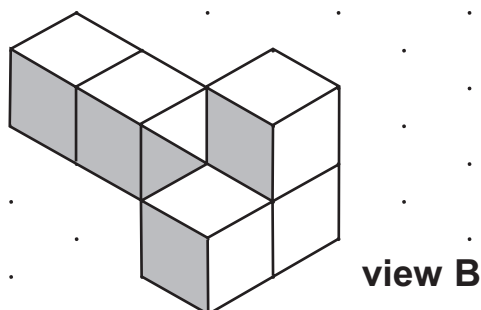
- (a) I join one more cube to my model.
The drawing from **view A** shows where I join the cube.



1 mark

- (b) Then I move the cube to a different position.

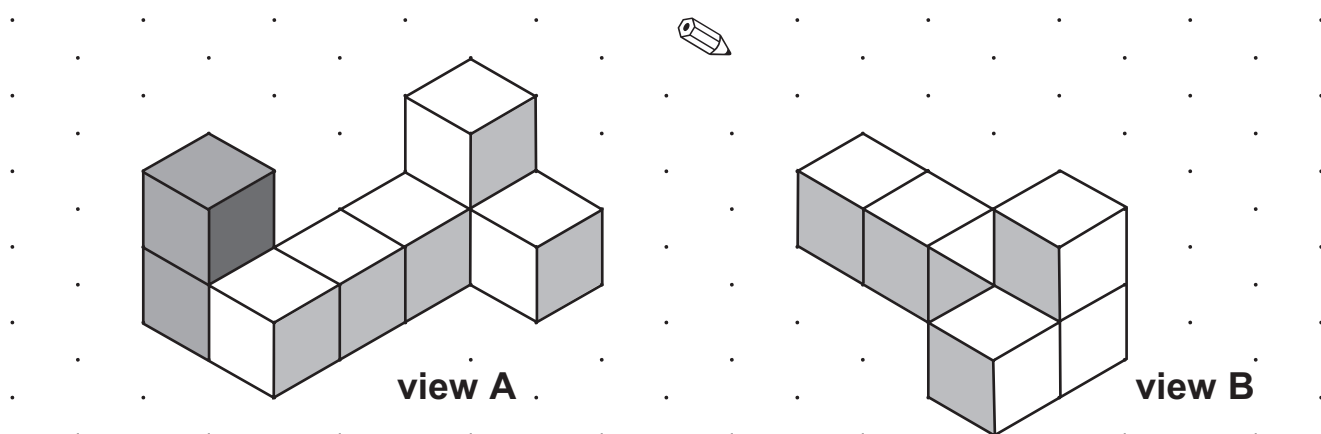
Complete the drawing from **view B**



1 mark

- (c) I add two cubes to make a different shape.

Complete the drawing from **view B**



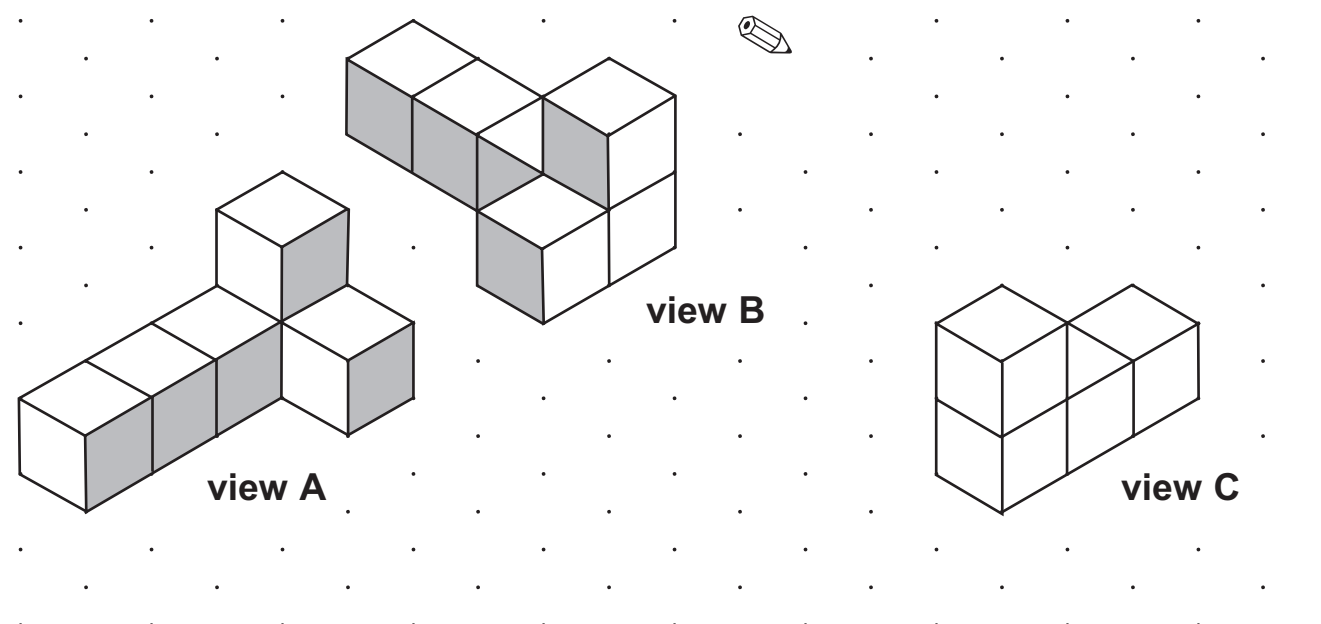
- (d) I start again with my original model of 6 cubes.

1 mark

The drawing shows it from **view A** and from **view B**

I start to draw it from a different view.

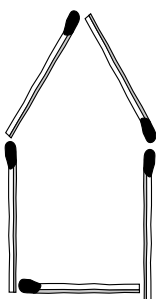
Complete the drawing from **view C**



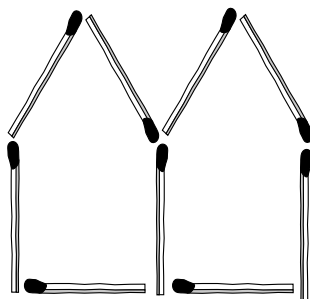
1 mark



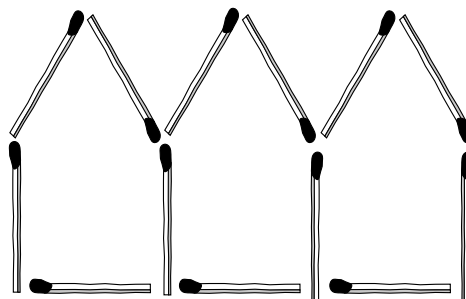
7. You can make 'huts' with matches.



1 hut needs
5 matches



2 huts need
9 matches



3 huts need
13 matches

A rule to find how many matches you need is

$$m = 4h + 1$$

m stands for the number of matches.

h stands for the number of huts.

- (a) **Use the rule** to find how many matches you need to make **8** huts.

Show your working.



.....

..... matches

.....
2 marks

- (b) I use **81 matches** to make some huts.

How many huts do I make?

Show your working.

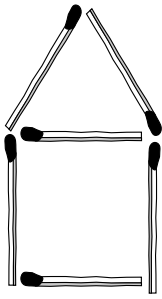


.....

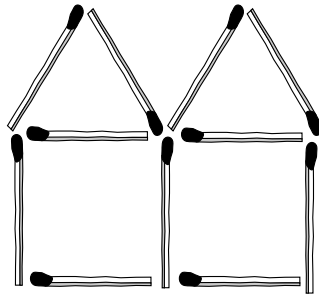
..... huts

.....
2 marks

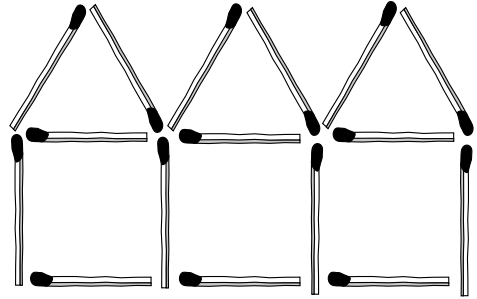
(c) Andy makes different 'huts' with matches.



1 hut needs
6 matches



2 huts need
11 matches



3 huts need
16 matches

Circle the rule below that shows how many matches he needs.

Remember: m stands for the number of matches.

h stands for the number of huts.



$$m = h + 5$$

$$m = 4h + 2$$

$$m = 4h + 3$$

$$m = 5h + 1$$

$$m = 5h + 2$$

$$m = h + 13$$

1 mark



8. A school has a new canteen.

A special person will be chosen to perform the opening ceremony.

The names of all the pupils, all the teachers and all the canteen staff are put into a box.

One name is taken out at random.

A pupil says:

There are only three choices.

It could be a pupil, a teacher or one of the canteen staff.

The probability of it being a **pupil** is $\frac{1}{3}$

The pupil is **wrong**. Explain why.



1 mark

9. Calculate



8% of £26.50 = £

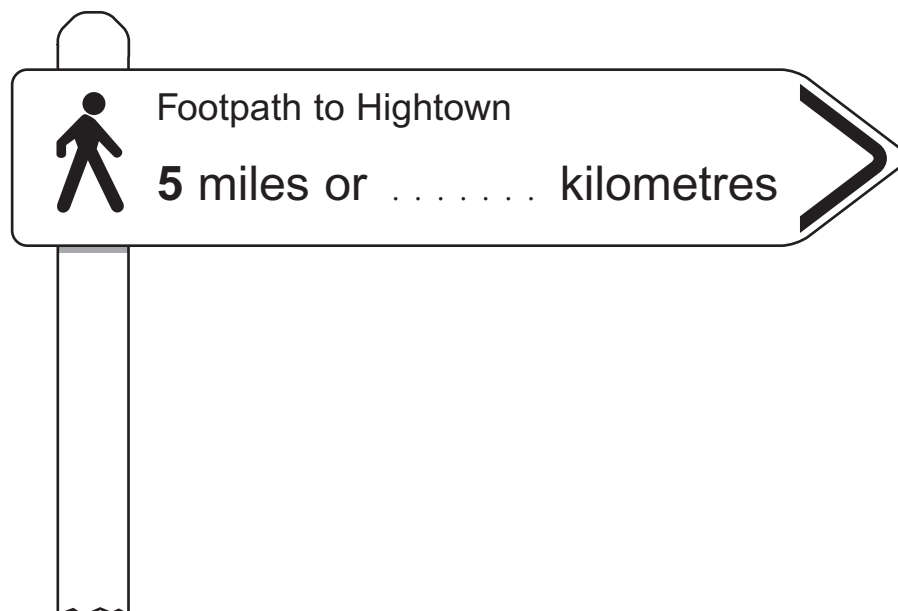
1 mark

 $12\frac{1}{2}\%$ of £98 = £

1 mark

10. How many kilometres are there in **5 miles**?

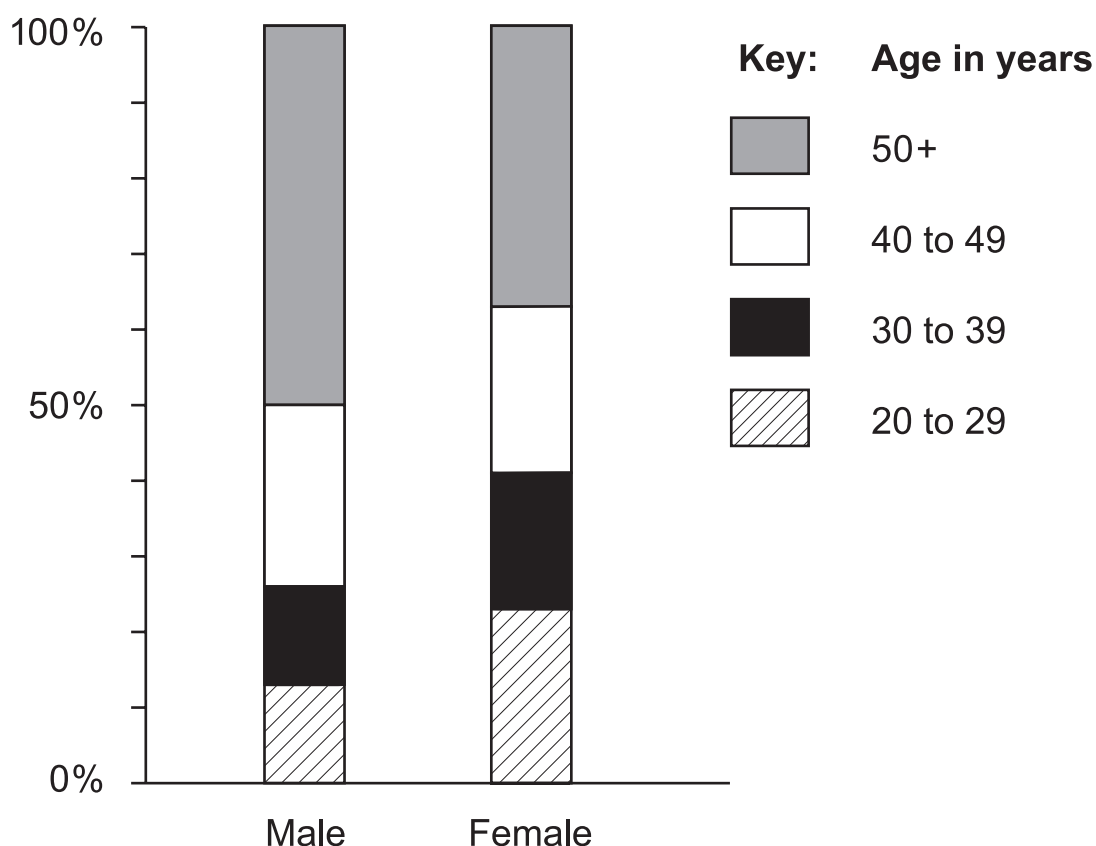
Complete the missing part of the sign.



1 mark



11. A newspaper predicts what the ages of secondary school teachers will be in six years' time.
They print this chart.



- (a) The chart shows **24%** of male teachers will be aged 40 to 49
About what percentage of female teachers will be aged 40 to 49?



..... %

1 mark

- (b) About what percentage of **female** teachers will be aged **50+**?



..... %

1 mark

-
- (c) The newspaper predicts there will be about **20 000** male teachers aged 40 to 49

Estimate the number of male teachers that will be aged 50+



.....

1 mark

- (d) Assume the total number of male teachers will be about the same as the total number of female teachers.

Use the chart to decide which statement is correct.

Tick (✓) your answer.



Generally, male teachers will tend to be younger than female teachers.

☐

Generally, female teachers will tend to be younger than male teachers.

☐

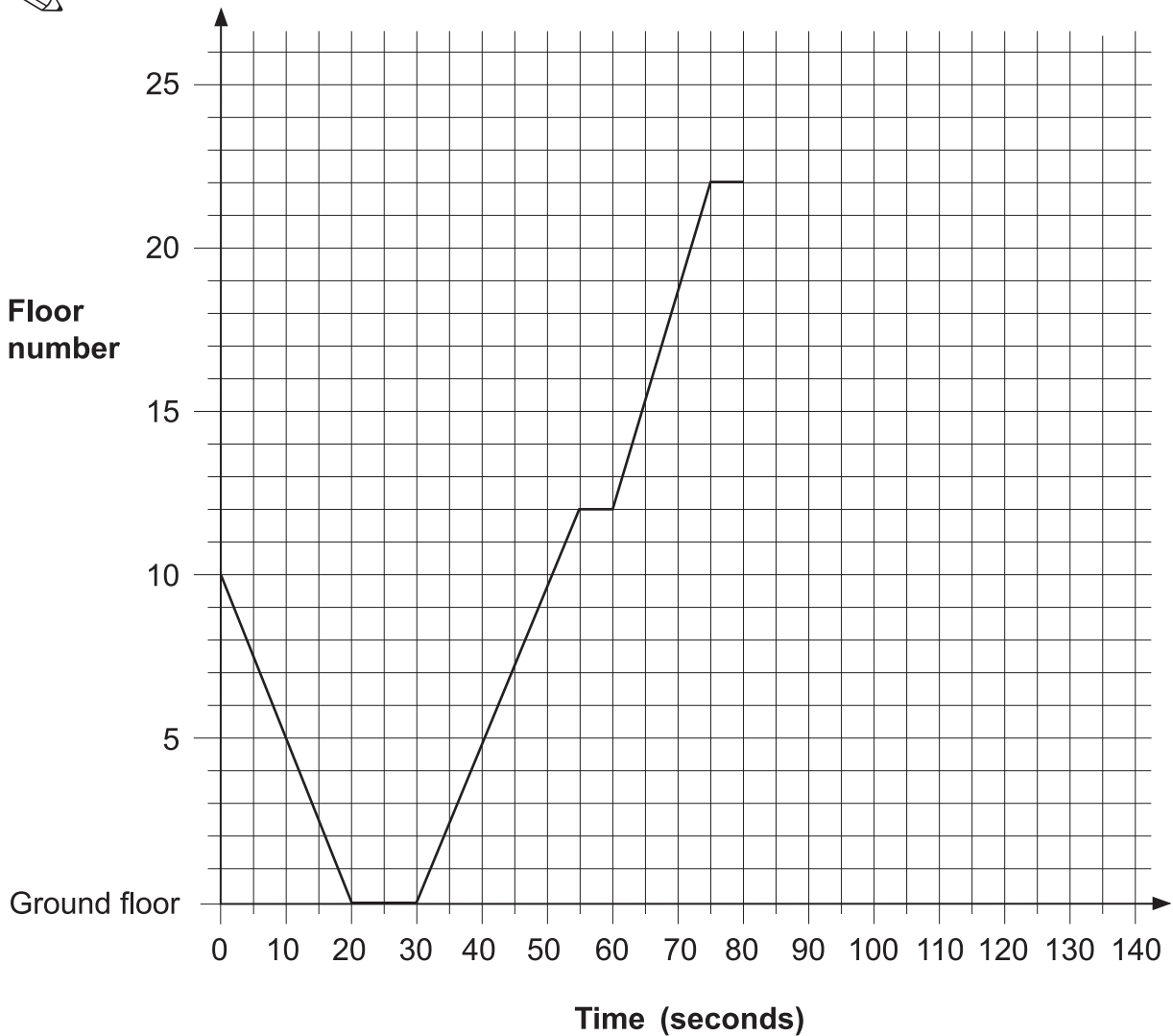
Explain how you used the chart to decide.



1 mark



12. The graph shows my journey in a lift.
I got in the lift at floor number 10



- (a) The lift stopped at two different floors before I got to floor number 22
What floors were they?



floors and

1 mark

(b) For how long was I in the lift while it was moving?



..... seconds

1 mark

(c) After I got out of the lift at floor number 22, the lift went directly to the ground floor.

It took **45 seconds**.

On the graph, show the journey of the lift from floor 22 to the ground floor.

1 mark



13. (a) Paula played four games in a competition.
In **three** games, Paula scored **8** points each time.
In the other game she scored **no** points.

What was Paula's **mean** score over the **four** games?



..... points

1 mark

- (b) Jessie only played **two** games.
Her **mean** score was **3** points.
Her **range** was **4** points.

What points did Jessie score in her two games?



..... and

1 mark

- (c) Ali played **three** games.
His **mean** score was also **3** points.
His **range** was also **4** points.

What points might Ali have scored in his three games?

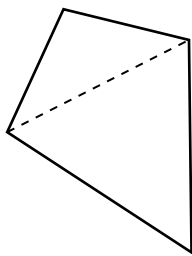
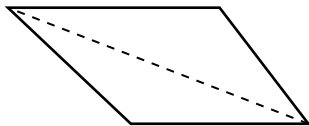
Show your working.



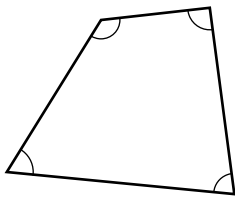
..... and and

2 marks

14. (a) Any quadrilateral can be split into 2 triangles.

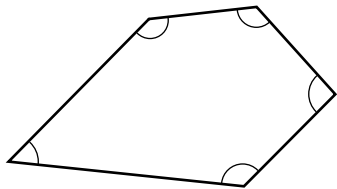


Explain how you know that the angles inside a **quadrilateral** add up to **360°**



1 mark

(b) What do the angles inside a **pentagon** add up to?

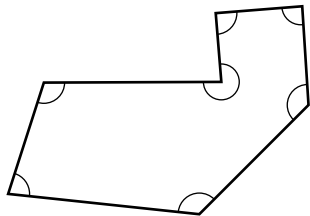


.....
o

1 mark

(c) What do the angles inside a **heptagon** (7-sided shape) add up to?

Show your working.



.....
o

.....

2 marks



15. A garden centre sells plants for hedges.
The table shows what they sold in one week.

Plants	Number of plants sold	Takings
Beech	125	£ 212.50
Leylandii	650	£ 2437.50
Privet	35	£ 45.50
Hawthorn	18	£ 23.40
Laurel	5	£ 32.25
Total	833	£ 2751.15

- (a) What percentage of the total number of plants sold was **Leylandii**?
Show your working.



..... %

.....

2 marks

- (b) What percentage of the **total takings** was for Leylandii?
Show your working.



..... %

.....

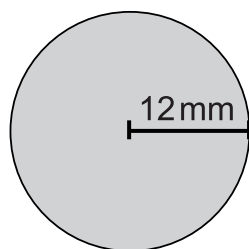
2 marks

- (c) Which is the **cheaper** plant, Beech or Privet?
Show working to explain how you know.



1 mark

16. The diagram shows a circle and a square.



Not drawn accurately

- (a) The radius of the circle is 12mm.

What is the **area** of the circle to the nearest mm^2 ?

Show your working.



..... mm^2

.....

.....
2 marks

- (b) The **ratio** of the area of the **circle** to the area of the **square** is **2:1**

What is the area of the square to the nearest mm^2 ?



..... mm^2

.....
1 mark

- (c) What is the side length of the square?

Show your working.



..... mm

.....

.....
2 marks

