

Interpreting graphs and diagrams

Year 7 About 70 minutes No calculator 45 marks



Hints online, answers free with an account:

mathswariz.uk/worksheets/ks3-year-7-interpreting-graphs-and-diagrams/

Date _____

A Do Now

Quick questions to start.

A1 Needed today [1 mark] **A2** Needed today [1 mark]Work out 25% of 360° .

Write 18 out of 60 as a percentage.

Answer

Answer

A3 Last lesson [1 mark] **A4** From chapter 4 [1 mark]Work out $(3 \times 10^4) \times (2 \times 10^3)$.
Give your answer in standard form.A price goes up from £40 to £50.
Work out the percentage increase.

Answer

Answer

B Example, then your turn

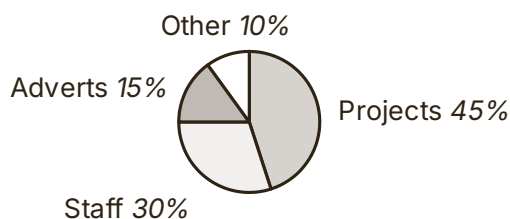
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Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

A charity spent £80 000. The pie chart shows how.

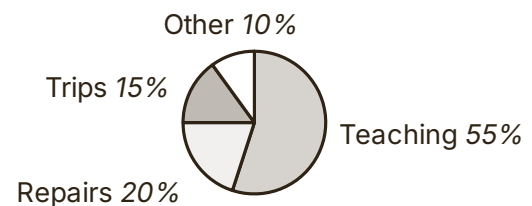
- (a) How much was spent on staff?
 (b) Lee says, "Most of the money went on projects." Is he right?



Hint A percentage of the total gives the amount.
 "Most" means more than half, so more than 50%.

B1 A school spent £60 000. The pie chart shows how. [4 marks]

- (a) How much was spent on trips?
 (b) Was most of the money spent on teaching? Give a reason.

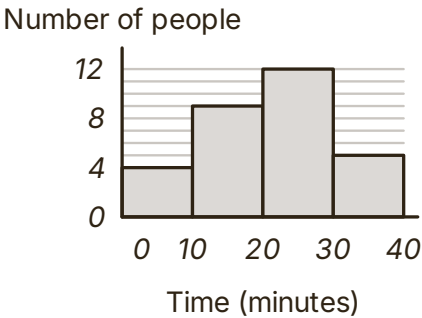


Answer

EXAMPLE 2

Waiting times at a clinic. 10–20 means 10 up to 20 minutes.

- (a) How many people waited?
(b) Which class holds the median time?
(c) Sam says, "Someone waited 45 minutes." Could he be right?



Hint Add the bar heights. The median is the middle person: count along the bars.

EXAMPLE 3

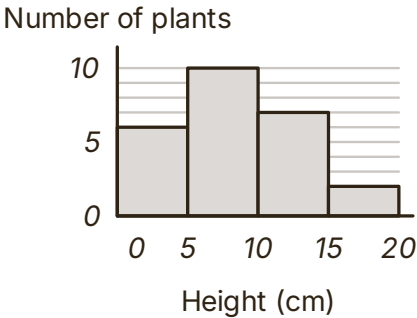
Visitors to four parks, in thousands. A headline says, "Fewer people visit our parks." Use the table to criticise it.

Park	2022	2024
North	340	295
South	410	388
East	205	312
West	145	180

Hint Look at each park, then at the totals.

B2 Heights of some plants. 5–10 means 5 up to 10 cm. [3 marks]

- (a) How many plants are there?
(b) Which class holds the median height?
(c) Tia says, "The tallest is 22 cm." Why is she wrong?



Answer (a) ... (b) ... (c)

B3 Customers in one week at four shops. [4 marks]

- (a) Which shop had more customers in 2024?
(b) Which shop fell the most, and by how many?
(c) By how much did the total fall?

Shop	2023	2024
A	260	245
B	180	150
C	315	330
D	95	80

Answer (a) ... (b) ... (c) ...

C Practice

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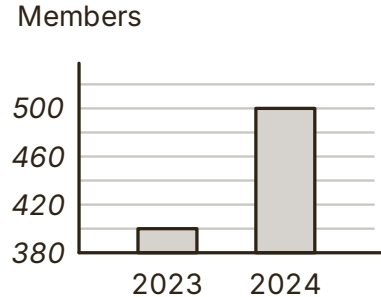
C1 A bag of sweets is Red 35%, Blue 20%, Yellow 15% and the rest Green. [3 marks]

- (a) Find the Green percentage and its angle in a pie chart.
(b) There are 200 sweets. How many are Green?

Answer (a) ...% , ...° (b) ...

C2 A club says, "We now have six times as many members!" [3 marks]

- (a) Why is its chart misleading?
(b) Work out the real percentage increase.



Answer (a) (b) ...%

C3 A news pie chart says Bus 40%, Car 35%, Walk 30%. [2 marks]

- (a) Why must this be wrong?
(b) Bus is right; Car and Walk are equal. Find Car.

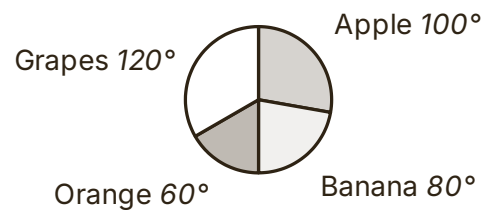
Answer (a) (b) ...%

D Exam-style questions

GCSE Foundation

D1 90 pupils chose their favourite fruit. The pie chart shows the angle of each sector.

(a) How many pupils chose apple? [2 marks]



Answer

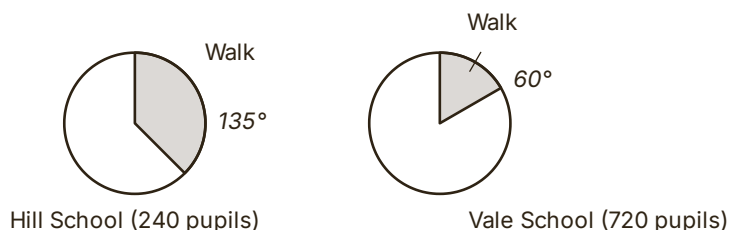
(b) How many more pupils chose grapes than orange? [2 marks]

Answer

Total for D1: 4 marks

- D2** Mo says, "More pupils walk to Hill School than to Vale School, because the walk sector is bigger." [4 marks]

The pie charts show how pupils travel to two schools. Is Mo right? You must show your working.



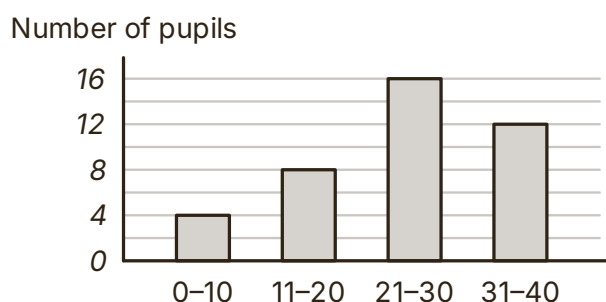
Answer

- D3** The bar chart shows the marks some pupils scored in a test.

- (a) How many pupils took the test? [1 mark]

Answer

- (b) Ria says, "The median mark is in the 11–20 class." [2 marks]
Explain why Ria is wrong.



Answer

- (c) What percentage of the pupils scored more than 20 marks? [2 marks]

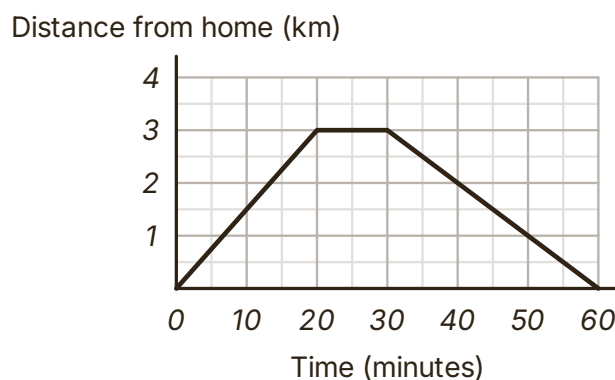
Answer

Total for D3: 5 marks

- D4** Asha walked to a shop, stayed there, then walked home. The graph shows her journey.

- (a) How long did Asha stay at the shop? How far did she walk altogether? [2 marks]

Answer ... minutes, ... km



(b) Work out Asha's speed on the way home, in kilometres per hour.

[2 marks]

Answer

Total for D4: 4 marks

E Extension

Stretch

No route is given. The hints are at the end of the sheet. Use one at a time.

- E1** 90 people were asked how they travel to work. They travel by bus, car, bike or on foot. In the pie chart, the car angle is twice the bus angle, the walk angle is 40° more than the bus angle, and 20 people cycle. How many people travel by car? [5 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Each person is $360 \div 90 = 4^\circ$. So the bike sector is $20 \times 4 = 80^\circ$.
- Hint 2** Call the bus angle b . Then car is $2b$ and walk is $b + 40$. All four angles add to 360° .
- Hint 3** $b + 2b + b + 40 + 80 = 360$, so $4b = 240$ and $b = 60^\circ$. Car is 120° , which is $120 \div 4 = 30$ people.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

- I can read amounts from a pie chart and work out its angles. ☐ ☐ ☐
- I can read a bar chart, a table and a line graph from the media. ☐ ☐ ☐
- I can say why a chart or a claim about it is misleading. ☐ ☐ ☐
- I can compare two pie charts with different totals. ☐ ☐ ☐