



Representing data

About 50 minutes Calculator allowed 36 marks

Date _____

A Do Now

The first question is what today's lesson needs. The others bring back earlier topics.

- A1** Needed today [2 marks] **A2** Last lesson [2 marks]
 $\frac{2}{3}$ of a number is 8. What is the number?

Answer

Answer

- A3** Key Stage 3 [2 marks] **A4** Key Stage 3 [2 marks]
 $M(2, 6)$ is the midpoint of $A(-6, 1)$ and B . Find the coordinates of B .
Round 0.7082 to 3 significant figures.

Answer

Answer

B Example, then your turn

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

EXAMPLE 1

60 people chose a fruit: apples 22, bananas 15, grapes 14, pears 9. Work out the pie chart angles.

Hint Work out $360 \div 60$ first. The angles must add up to 360° .

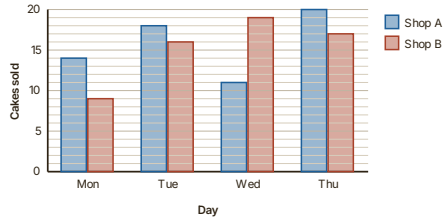
- B1** 40 students named their pet: [3 marks]
dog 13, cat 11, fish 7, none 9.
Work out the pie chart angles.

Answer

C Practice

- C1** The dual bar chart shows the number of cakes sold at two shops from Monday to Thursday. On which day was the difference between the shops greatest, and what was the difference?

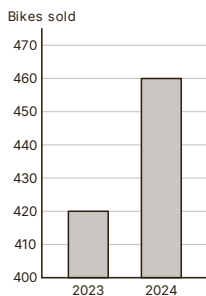
[2 marks]



Answer difference

- C3** The bar chart shows the number of bikes a shop sold in two years. The axis starts at 400. How many times as tall as the 2023 bar is the 2024 bar? Work out the real percentage increase in sales, to 1 decimal place.

[2 marks]



Answer times%

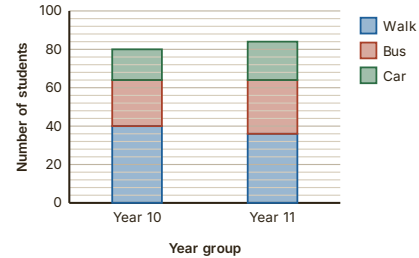
- C5** In a pie chart, a sector of 54° stands for 15 people. How many people does the whole chart show?

[2 marks]

Answer

- C2** The composite bar chart shows how students in two year groups travel to school. How many Year 11 students travel by bus?

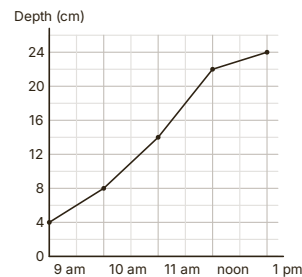
[2 marks]



Answer

- C4** The line graph shows the depth of water in a tank, read every hour. Estimate the depth at 11:30 am.

[1 mark]



Answer

- C6** A pie chart has three sectors. Their angles are in the ratio 2 : 3 : 7. Work out the size of the largest angle.

[2 marks]

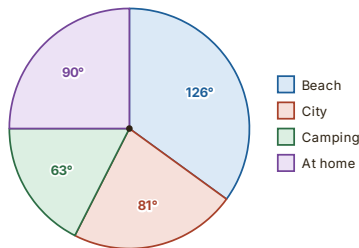
Answer

D Exam-style questions

- D1** Ana is drawing a pie chart for 25 people. She says, "Each person gets 15° , because $360 \div 25$ is about 15." [2 marks]

Explain why Ana's pie chart will not work, and give the correct angle for one person.

- D2** 160 people were asked where they spent their main holiday. The pie chart shows the results.



- (a) How many people chose a beach holiday? [2 marks]

Answer

- (b) How many more people chose a beach holiday than camping? [2 marks]

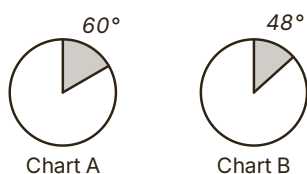
Answer

- (c) In a second survey, 85 out of 250 people chose a beach holiday. Which survey had the greater percentage choosing a beach holiday? Show how you decide. [2 marks]

Total for D2: 6 marks

- D3** Pie chart A shows the favourite subjects of 180 pupils. Pie chart B shows the favourite subjects of 300 pupils. The music sector is 60° in chart A and 48° in chart B. Zak says, "More pupils chose music in chart A, because its sector is bigger." [3 marks]

Show that Zak is wrong.



E Extension

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

- E1** In a pie chart the sector for people who walk is 72° . When 15 more people who walk are added, and nobody else, it becomes 108° . How many people did the chart show at first? [3 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Call the number of people at first n . How many of them walk?
- Hint 2** At first $\frac{n}{5}$ walk, so $\frac{\frac{n}{5} + 15}{n + 15} = \frac{108}{360} = \frac{3}{10}$.
- Hint 3** $10\left(\frac{n}{5} + 15\right) = 3(n + 15)$ gives $2n + 150 = 3n + 45$, so $n = 105$.

How did it go?

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

I can work out the angles of a pie chart and read a number from a sector. ☐ ☐ ☒

I can compare data in bar charts and spot an axis that does not start at 0. ☐ ☐ ☒

I can read an estimate from a line graph. ☐ ☐ ☒