

Calculating percentages

Year 7 About 60 minutes Calculator allowed 52 marks



Hints online, answers free with an account:
mathswariz.uk/worksheets/ks3-year-7-calculating-percentages/

Date _____

A Do Now

Quick questions to start.

- A1** Needed today [1 mark] **A2** Needed today [1 mark]
 Write $\frac{3}{20}$ as a percentage. Write 0.375 as a percentage.

Answer

Answer

- A3** Last lesson [1 mark] **A4** From chapter 2 [1 mark]
 A coin lands on heads 36 times in 80 throws. Estimate P(heads) as a decimal. One angle of a parallelogram is 65° . Work out the size of an angle next to it.

Answer

Answer

B Example, then your turn

Year 7

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

EXAMPLE 1

A cinema has 250 seats. On Monday 185 seats are sold. What percentage of the seats are sold?

Hint Write the amount as a fraction of the total, then change the fraction to a percentage.

- B1** A school has 300 pupils and 87 [2 marks]
 of them walk to school. What percentage of the pupils walk to school?

Answer

EXAMPLE 2

Write 350 g as a percentage of 2 kg.

Hint Both amounts must be in the same units before you write the fraction.

- B2** (i) Write 45 cm as a percentage [3 marks]
 of 3 m. (ii) Write 600 ml as a percentage of 2.5 litres.

Answer (i) (ii)

EXAMPLE 3

Tom earns £347.50 a week. He spends £92.40 on travel. What percentage of his pay is that? Give your answer to the nearest whole number.

Hint Divide, then multiply by 100. Round only at the end.

B3 A bag holds 2.75 kg of rice. [2 marks]

Ben uses 0.68 kg. What percentage of the rice does he use? Give your answer to 1 decimal place.

Answer

EXAMPLE 4

Last year a club had 240 members. This year it has 312 members. What percentage of last year's number is this year's number?

Hint "Of last year's number" means last year's number goes on the bottom of the fraction.

B4 Sam's sunflower was 48 cm [3 marks]

tall in May and 66 cm tall in July. (i) Write the July height as a percentage of the May height. (ii) Write the May height as a percentage of the July height, to 1 decimal place.

Answer (i) (ii)

c Practice

Year 7

C1 In a survey of 80 people, 28 [2 marks]
chose red, 36 chose blue and
the rest chose green. What
percentage chose green?

Answer

C2 A 400 g packet of trail mix [2 marks]
contains 140 g of nuts. The rest
is dried fruit. What percentage
of the packet is dried fruit?

Answer

C3 A swimming race is 1.5 km. The [2 marks]
pool is 25 m long. What
percentage of the race has Amy
swum after 18 lengths?

Answer

C4 Ali sleeps for 8 hours 24 [2 marks]
minutes in one day. What
percentage of the day is that?

Answer

C5 Jess scores 27 goals from 45 [3 marks]
shots. Kat scores 38 goals from
60 shots. Who has the better
success rate? Show your
working.

Answer

D **Exam-style questions**

GCSE Foundation

D1

A suitcase weighs 18 kg and its owner weighs 72 kg. Priya says, "The suitcase is 25% of the total weight of the owner and the suitcase."

[3 marks]

Is Priya correct? You must show your working.

D2 The table shows the waste two families threw away in one week.

(a) Work out the food waste as a [2 marks]
percentage of the total waste
for the Smith family.

Waste	Smith (g)	Patel (g)
Food	1200	1800
Plastic	450	540
Paper	600	900
Other	750	1260

Answer

(b) Which family has the greater [3 marks]
percentage of plastic waste?
You must show your working.

Answer

(c) Mr Patel says, "We throw away more paper than the Smiths, so paper is a [2 marks]
bigger part of our waste." Is he correct? Give a reason for your answer.

Total for D2: 7 marks

D3 The bar chart shows how 50 students travel to school.

- (a) What percentage of the students walk? [2 marks]

Answer

- (b) What percentage of the students who do not walk come by bus? [2 marks]

Answer

- (c) Write the number who cycle as a percentage of the number who come by car. [1 mark]
Give your answer to 1 decimal place.

Answer

Total for D3: 5 marks

D4 A town had 8450 people in 2010 and 11 320 people in 2020.

- (a) Write the number of people in 2020 as a percentage of the number in 2010. [2 marks]
Give your answer to 1 decimal place.

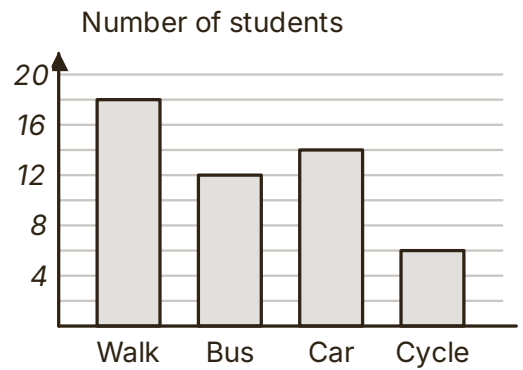
Answer

- (b) Mia says, "So the number of people went up by 134%." Explain why Mia is wrong. [2 marks]

Total for D4: 4 marks

D5 Kim has a 1.5 kg bag of flour.

- (a) She uses 450 g of the flour. Show that she uses 30% of the bag. [2 marks]



(b) She then uses another 0.6 kg. What percentage of the bag is left?

[2 marks]

Answer

Total for D5: 4 marks

E Extension

Stretch

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

- E1** In a class, 60% of the pupils are girls. Then 4 girls leave the class and no one joins. Now 50% of the pupils are girls. How many pupils were in the class at first? [4 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Try a size for the class, for example 30. How many girls? How many after 4 leave? What percentage is that now?
- Hint 2** The number of boys does not change. At first the boys are 40% of the class. At the end the boys are 50%.
- Hint 3** Try 20 pupils: 12 girls and 8 boys. After 4 girls leave there are 8 girls and 8 boys, which is 50% girls. So 20.

How did it go?

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

- I can write one amount as a percentage of another. ☐ ☐ ☐
- I can change amounts into the same units before I work out a percentage. ☐ ☐ ☐
- I can use a calculator to work out a percentage and round it. ☐ ☐ ☐
- I can work out percentages greater than 100%. ☐ ☐ ☐