



Percentage change and comparison

About 45 minutes Calculator allowed 42 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]
- In a sale, all prices are reduced by 60%. A coat costs £40 in the sale. What was its price before the sale?
- Work out $3\frac{7}{9} + 2\frac{4}{5}$. Give your answer as a mixed number.

Answer _____

Answer _____

- A3** Key Stage 3 [2 marks] **A4** Key Stage 3 [2 marks]
- Work out the value of $4x^2 + x + 2$ when $x = -3$.
- Solve $2x + 4 = 9x + 11$.

Answer _____

Answer _____

B Example, then your turn

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

EXAMPLE 1

Increase £84 by 17.5%.

Hint An increase of 17.5% means you end with 117.5% of the amount. Write that as a decimal multiplier.

- B1** Increase £136 by 8.5%. [2 marks]

Answer _____

EXAMPLE 2

A price falls from £85 to £68. Work out the percentage decrease.

Hint Work out the change, then divide it by the ORIGINAL amount.

- B2** A season ticket rises from £360 to £387. Work out the percentage increase. [2 marks]

Answer _____

EXAMPLE 3

Decrease 2350 kg by 12%.

Hint A decrease of 12% leaves 88% of the amount.
The multiplier is 0.88.

B3 Decrease £680 by 6.5%. [2 marks]

Answer

c Practice

C1 Write 45 cm as a percentage of 1.2 m. [2 marks]

Answer

C2 Sam scored 34 out of 40 in French and 52 out of 60 in Spanish. In which test did he score the higher percentage? Show how you decide. [2 marks]

Answer

C3 A coat sells for £68, which is £17 more than the shop paid. Find the percentage profit, to 1 d.p. [2 marks]

Answer

C4 Find the single multiplier for a 15% increase followed by a 15% decrease. [2 marks]

Answer

C5 Shop A sells a jacket for £45 with $\frac{1}{3}$ off. Shop B sells the same jacket for £42 with 25% off. Which shop is cheaper, and by how much? [3 marks]

Answer

C6 A car is bought for £8400 and sold a year later for £6930. Work out the percentage loss. [2 marks]

Answer

D Exam-style questions

D1 Kai says, "Members fell from 120 to 90, a 25% decrease. So a rise from 90 to 120 is a 25% increase." [2 marks]

Explain why Kai is wrong. Work out the correct increase, to 1 decimal place.

D2 A museum had 18 500 visitors in May. In June the number of visitors rose by 14%. In July there were 19 240 visitors.

(a) Work out the number of visitors in June. [2 marks]

Answer

- (b) Work out the percentage decrease from June to July. Give your answer to 1 decimal place. [3 marks]

Answer

- (c) Work out the percentage change from May to July. Say whether it is an increase or a decrease. [2 marks]

Answer

Total for D2: 7 marks

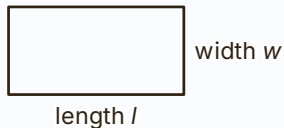
- D3 In a school, 55% of the students are girls. 40% of the girls and 30% of the boys have a pet. What percentage of all the students have a pet? [3 marks]

Answer

E Extension

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

- E1 The length of a rectangle is increased by 25%. Its area stays the same. By what percentage must its width be decreased? [3 marks]



Not drawn accurately

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1 **Hint 1** Call the length l and the width w . Write the new length.
Hint 2 New width $\times 1.25l = lw$, so the new width is $\frac{w}{1.25}$.
Hint 3 $\frac{1}{1.25} = 0.8$, which is a multiplier for a decrease of 20%.

How did it go?

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

I can increase or decrease an amount by a percentage using a multiplier. ☐ ☐ ☐

I can write one amount as a percentage of another. ☐ ☐ ☐

I can work out a percentage change from the original amount. ☐ ☐ ☐