

GCSE Maths: Percentage change, profit and loss (Higher): answers

GCSE Maths - Percentages - Higher - Lesson 5.5

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch05-percentages/higher/percentage-change-profit-and-loss/

Exercise 5H Percentage change, profit and loss (non-calculator)

Non-calculator

1 Work out the percentage change in each case. Say whether it is an increase or a decrease.

(a) £40 to £50

Answer: 25% increase

(b) 80 to 60

Answer: 25% decrease

(c) £200 to £250

Answer: 25% increase

(d) 50 to 65

Answer: 30% increase

(e) 400 to 300

Answer: 25% decrease

(f) £15 to £18

Answer: 20% increase

2 Work out the percentage profit or loss in each case.

(a) Bought for £60, sold for £84

Answer: 40% profit

(b) Bought for £500, sold for £450

Answer: 10% loss

(c) Bought for £25, sold for £30

Answer: 20% profit

(d) Bought for £80, sold for £60

Answer: 25% loss

3 A gym has 400 members in January and 460 members in June. Work out the percentage increase in the number of members.

Answer: 15% increase

4 The price of a bus pass goes up from £80 to £88. Work out the percentage increase in the price.

Answer: 10% increase

5 A shop buys a pair of trainers for £50 and sells them for £65. Work out the percentage profit.

Answer: 30% profit

6 The population of a village falls from 800 to 680. Work out the percentage decrease.

Answer: 15% decrease

7 A phone costs £500. After a year its price falls to £375. Work out the percentage decrease in the price.

Answer: 25% decrease

8 A market trader buys scarves for £8 each and sells them for £14 each. Work out the trader's percentage profit.

Answer: 75% profit

9 A sunflower is 12 cm tall in week 1 and 30 cm tall in week 2. Work out the percentage increase in height.

Answer: 150% increase

10 Shop A raises the price of a kettle from £120 to £150. Shop B raises the price of a toaster from £80 to £104. Which shop has the bigger **percentage** increase?

Answer: Shop B (30%, compared with 25%)

11 A price rises from £50 to £60, which is a 20% increase. Lee says, "So it needs to fall by 20% to get back to £50." Is he right? Show how you know.

Answer: No. It must fall by 16.7%

12 (a) The unemployment rate fell from 8% to 6%. By how many **percentage points** did it fall? (b) Work out the **percentage decrease** in the rate.

(a) Change in percentage points

Answer: 2 percentage points

(b) Percentage decrease

Answer: 25%

13 A shopkeeper buys a jacket for £200 and marks it up by 40% to get the price on the label. In a sale the jacket is sold for 25% off the label price. Does the shopkeeper make a profit or a loss on the jacket? Work out the percentage.

Answer: 5% profit

Exercise 51 Percentage change (calculator)

Calculator allowed

1 Work out the percentage change in each case. Give your answers correct to 1 decimal place.

(a) 36 to 41

Answer: 13.9% increase

(b) 8.5 to 7.2

Answer: 15.3% decrease

(c) 1,250 to 980

Answer: 21.6% decrease

(d) 64 to 100

Answer: 56.3% increase

(e) 15.5 to 21.7

Answer: 40% increase

- 2 A shop buys a lamp for £18.50 and sells it for £27.95. Work out the percentage profit. Give your answer to 1 decimal place.

Answer: 51.1% profit

- 3 Naz buys a car for £12,400 and sells it two years later for £9,650. Work out his percentage loss. Give your answer to 1 decimal place.

Answer: 22.2% loss

- 4 The rainfall in a town was 84 mm in March and 99 mm in April. Work out the percentage increase. Give your answer to 1 decimal place.

Answer: 17.9% increase

- 5 The price of a share falls from £4.20 to £3.57. Work out the percentage decrease.

Answer: 15% decrease

- 6 A town's population was 24,800 in 2015, 27,280 in 2020 and 29,100 in 2025. In which five-year period was the **percentage** increase bigger? Show your working.

Answer: 2015 to 2020 (10%, compared with 6.7%)

- 7 Write down the percentage change when a number goes from 80 to 45. Give your answer to the nearest whole number.

Answer: 44% decrease

- 8 Sales were 200 in 2023, 300 in 2024 and 450 in 2025. Ava says, "Sales rose by 50% each year, so over the two years they rose by 100%." Is she right? Show how you know.

Answer: No. The increase is 125%