

Percentage Change Practice



Q1. The price of a can of orange was 60p last week. This week, it costs 75p. Work out the percentage change in the price.

$$\frac{75-60}{60} \times 100$$

Answer: 25%
(2 marks)

Q2. A coat usually costs £320. In a sale, the same coat now costs £300. Work out the percentage change in the price, giving your answer to 1 decimal place.

$$\frac{320-300}{320} \times 100$$

Answer: 6.25%
(2 marks)



Q3. In 2019, the annual cost of running a local catering company is £25,000. In 2020, the costs amounted to £33,000.

Work out the percentage increase in the cost of running the company.

$$\frac{8000}{25000} \times 100$$
$$= 32$$

Answer: 32%
(2 marks)

Q4. Bottles of water cost £1.20 in a supermarket. In a special offer, bottles are sold at 85p. Work out the percentage change in the price.

$$\frac{35}{120} \times 100$$
$$= 29.2$$

Answer: 29.2%
(2 marks)



Q5. Computer games cost £42 each at a shop. If the owner decides to increase the price of each game by £3.20, work out the percentage change in the price, giving your answer to 1 decimal place.

$$\frac{3.20}{42}$$
$$= 7.6 \quad (1 \text{ d.p.})$$

Answer: 7.6%
(2 marks)

Q6. Right now, the annual cost of a council tax bill is £75. The council project that the bill will increase by £5 each year. Work out the percentage change in the cost in three years' time compared with now.

in 1 Year: 80
in 2 years: 85
in 3 years: 90

$$90 - 75 = 15$$

$$\frac{15}{75} \times 100 = 20$$

Answer: 20%
(3 marks)



Q7. At a firm, Jeff's annual wage has increased from £35,400 to £43,700, whilst Max's salary has increased from £19,000 to £24,000. Who has had enjoyed the greatest percentage change in their salary? You must show all your working.

$$\text{Jeff: } \frac{8300}{35400} \times 100 = 23.4\%$$

$$\text{Max: } \frac{5000}{19000} \times 100 = 26.3\%$$

Max has the largest % increase.

Answer: Max
(4 marks)

Q8. The price of petrol goes up from £1.20 a litre to £1.26 a litre. Work out the percentage change in the price of the fuel.

$$\frac{6}{120} \times 100 = 5$$

Answer: 5%
(2 marks)



Q9. Matt upgrades his gym membership from Silver which costs £x, to Gold which costs £15 more. Write down an expression for the percentage change.

$$\frac{15}{x} \times 100$$
$$= \frac{1500}{x}$$

Answer: $\frac{1500}{x}$
(2 marks)

Problem Questions:

Q10. At a cricket stadium, the number of occupied seats went from being $\frac{1}{2}$ full on Saturday to $\frac{5}{8}$ full on Sunday.
Work out the percentage change in the number of occupied seats.

$$\cdot \text{Change: } \frac{5}{8} - \frac{1}{2}$$
$$= \frac{5}{8} - \frac{4}{8}$$
$$= \frac{1}{8}$$
$$\cdot \frac{\frac{1}{8}}{\frac{1}{2}} \times 100 = 25$$

Answer: 25%
(3 marks)



- Q11. Over the course of a week, the proportion of people voting for Mr. Walker in a local election fell from $\frac{3}{4}$ to $\frac{1}{3}$.
Work out the percentage change in the number of people voting for him.

$$\frac{3}{4} - \frac{1}{3} = \frac{9-4}{12}$$
$$= \frac{5}{12}$$

$$\frac{\frac{5}{12}}{\frac{3}{4}} \times 100 = 55.6 \quad (1 \text{ d.p.})$$

Answer: 55.6 %
(3 marks)

- Q12. Paul's dog weighed 3 kg at the start of 2011. Since then, it has increased in weight by the same amount each year. If it weighed 8.4 kg at the start of 2020, find the percentage change in the dog's weight from the start of 2019 to the start of 2020.

- $8.4 - 3 = 5.4 \text{ kg}$.
- 2011 to 2020 is 10 years, \Rightarrow change of 0.54 kg each year.
- 2019: $8.4 - 0.54 = 7.46$
- Change 2019 to 2020: $\frac{0.54}{7.46} \times 100 = 7.2\%$

Answer: 7.2 %
(3 marks)



Q13. Yesterday, Tina made a cake in the shape of a square having side length 8 cm. Today, she makes another cake in the shape of a square, this time having side length 5 cm. Work out percentage change in the area of the cake since yesterday, to the nearest whole number.

$$\begin{aligned} \cdot \text{Area yesterday} &: 8 \times 8 = 64 \text{ cm}^2 \\ \cdot \text{Area today} &: 5 \times 5 = 25 \text{ cm}^2 \end{aligned}$$

$$\frac{64 - 25}{64} \times 100 = 60.9375$$

Answer: 61%
(3 marks)

Q14. A model aeroplane weighs 2.1 kg. Abbie decides to reduce the weight of the plane by 230 g to improve its flight. Work out the percentage change in the weight of the plane, giving your answer to 1 decimal place.

$$\begin{aligned} \cdot 2100 - 230 &= 1870 \\ \cdot \frac{1870}{2100} \times 100 &= 89.04 \dots \end{aligned}$$

Answer: 89.0%
(2 marks)



Q15. Mike's pocket money has increased from £12 to £14 a week. He decides to work out the percentage change. His working is as follows:

$$£14 - £12 = £2$$

$$\frac{2}{14} \times 100 = 14.3\%$$

Do you agree? You must fully explain your reasoning.

Disagree — should be : $14 - 12 = 2$

$$\frac{2}{12} \times 100 = 16.\dot{6}$$

$$= 16.7\% \text{ (1.d.p.)}$$

or

explain that Mike used the 'new' amount instead of the 'original' amount in the denominator on line 2.

Answer: _____
(1 mark)