

Name:

Exam Style Questions

Percentage Change



Corbettmaths

Equipment needed: Calculator and Pen

### Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

Video 233



Answers and Video Solutions



1.



- (a) The price of a TV is £260  
In a sale the price is decreased by 20%

$$260 - 52$$

Work out the price of the TV in the sale.

$$10\% \rightarrow £26$$

$$20\% \rightarrow £52$$

$$\begin{array}{r} \text{£ } 208 \\ \hline \end{array} \quad (3)$$

- (b) The number of TVs sold increased from 70 to 98

Work out the percentage increase.

$$\frac{28}{70} \times 100 \quad \frac{4}{10} \times 100$$

$$\begin{array}{r} 40 \\ \hline \end{array} \% \quad (2)$$

2.



- The value of a painting rises from £120,000 to £192,000.

Work out the percentage increase in the value of the painting.

$$\frac{72000}{120000} \times 100$$

$$\begin{array}{r} 60 \\ \hline \end{array} \% \quad (3)$$

3.



- A puppy weighed 2kg.  
Eight weeks later the puppy weighed 3.5kg

What was the percentage increase in the puppy's weight?

$$\frac{1.5}{2} \times 100$$

$$\begin{array}{r} 75 \\ \hline \end{array} \% \quad (3)$$

4. Peter's weight decreases from 80kg to 64kg.



Calculate the percentage decrease in Peter's weight.

$$\frac{16}{80} \times 100$$

$$\frac{2}{10} \times 100$$

.....%  
(2)

5. Alice buys a book for £19.80



A year later she sells the book for £12.87

Calculate the percentage decrease in the value of the book.

$$19.80 - 12.87 = 6.93$$

$$\frac{6.93}{19.80} \times 100$$

.....%  
(3)

6. In a sale the price of a sofa is reduced from £2500 to £1840



What is the percentage decrease?

$$2500 - 1840 = 660$$

$$\frac{660}{2500} \times 100$$

.....%  
(3)

7. The volume of soda in a can is increased from 250ml to 330ml.



Work out the percentage increase.

$$330 - 250 = 80$$

$$\frac{80}{250} \times 100$$

.....%  
**(3)**

8. Sarah bought a TV for £250  
Three years later she sold it for £180



Work out her percentage loss

$$\frac{70}{250} \times 100$$

.....%  
**(3)**

9. A car is travelling at 40 kilometres per hour.  
The car increases its speed to 56 kilometres per hour.



Calculate the percentage increase in the speed of the car.

$$\frac{16}{40} \times 100$$

$$\frac{4}{10} \times 100$$

.....%  
**(3)**

10. Susan buys an antique for £120 and sells it for £216.



Work out her percentage profit

$$\begin{array}{l} \div 12 \\ \div 12 \end{array} \left\{ \begin{array}{l} \frac{96}{120} \times 100 \\ \frac{8}{10} \times 100 \end{array} \right.$$

.....%  
(3)

11. Last year, a box of cereal had a mass of 500g  
This year, the box of cereal has a mass of 465g



Work out the percentage decrease in the mass of the box of cereal.

$$\frac{35}{500} \times 100$$

.....%  
(3)

12. Jose bought a box of 48 calculators for £384  
He sells the calculators for £9.44 each.



Calculate the percentage profit.

$$384 \div 48 = f8$$

$$\frac{1.44}{8} \times 100$$

.....%  
(4)

13. Holly bought a table for £80  
She sold the table for £108



Find the percentage profit

$$\begin{array}{r} 28 \\ \hline 80 \end{array} \times 100$$
$$\begin{array}{r} 3.5 \\ \hline 10 \end{array} \times 100$$

.....%  
(3)

14. The population of Northern Ireland in 1911 was 1,256,561  
In 2021 the population was 1,903,175



Calculate the percentage increase.

Give your answer correct to one decimal place.

$$1903175 - 1256561 = 646614$$

$$\frac{646614}{1256561} \times 100$$

.....%  
(4)

15. In 2018 the price of a house was £72,600.  
By 2024 the price of the house had increased to £125,598



Find the percentage increase in the price of the house from 2018 to 2024.

$$\frac{52998}{72600} \times 100$$

.....%  
(3)

16. A website had 140,000 views in March.  
It had 198,800 views in April.



Work out the percentage increase in views.

$$\frac{58800}{140000} \times 100$$

.....42.....%  
(3)

17. In a sale the price of a toaster decreases from £50 to £39.



Work out the percentage decrease in price.

$$\frac{11}{50} \times 100$$

$$\frac{22}{100} \times 100$$

.....22.....%  
(3)

18. Cian bought 12 litres of lemonade.  
He paid £8 for the lemonade.



Cian pours all the lemonade into 300ml cups.  
He sold all the cups of lemonade for 90p each.

Work out his percentage profit.

$$12000 \div 300 = 40$$

$$40 \times 0.9 = 36$$

$$\frac{28}{8} \times 100$$

.....350.....%  
(4)

19. An empty bucket weighs 800g.  
The weight of the bucket increases to 2.1kg when filled with water.



Calculate the percentage increase in the weight of the bucket.  
Give your answer to two significant figures.

$$\frac{1.3}{0.8} \times 100$$

$$162.5\%$$

$$\frac{160}{\dots\dots\dots}\%$$

(4)

20. Orla weighed 3.77kg when she was born.  
On Orla's second birthday she weighed 12.8kg.



Calculate the percentage increase in her weight.

$$\frac{9.03}{3.77} \times 100$$

$$239.5225\%$$

$$\frac{239.52}{\dots\dots\dots}\%$$

(3)

21. Rebecca and Jennifer take part in a training camp to improve their performance at the javelin.



The table below shows Rebecca's and Jennifer's best javelin throw before and after the training camp.

	Before training camp	After training camp
Rebecca	50.02m	51.27m
Jennifer	45.88m	46.92m

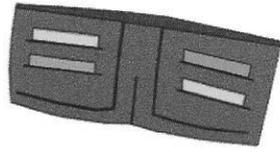
Which athlete had the biggest percentage improvement?  
You must show your method.

Rebecca  $\frac{1.25}{50.02} \times 100$  2.499%

Jennifer  $\frac{1.04}{45.88} \times 100$  ~~2.26678%~~  
2.26678%

Rebecca .....  
(4)

22. Terry goes to the Post Office to exchange money.



\$ £ €

### Exchange Rates

£1 : \$1.55

£1 : €1.24

\*Commission Charged

Terry changes \$651 and €161.20 into pounds sterling.  
The Post Office deducts their commission and gives Terry £528.

What is the percentage commission?

$$\begin{array}{l} \$651 \rightarrow £420 \\ €161.20 \rightarrow £130 \\ \hline £550 \end{array}$$

$$\frac{22}{550} \times 100 = 4$$

4  
.....%  
(4)

23. The number of visitors to a museum in 2023 was  $6.2 \times 10^5$   
In 2024, the museum had  $7.8 \times 10^5$  visitors



Calculate the percentage increase.

$$\frac{1.6 \times 10^5}{6.2 \times 10^5} \times 100$$

25.806  
.....%  
(3)

24. A clothes shop normally sells their goods at 80% above cost price.  
In a sale, the shop reduces the prices by 25%.



What percentage profit does the shop make on clothes sold in the sale?

buys for 100%  
sells for 180%

$$180 \times 0.75 = 135$$

35  
.....%  
(3)

25. A hardware store sells 1 tonne bags of sand for £56.00



The owner of the store <sup>1000 kg</sup> decreases the mass of sand in each bag by 40kg but keeps the price the same.

Work out the percentage increase in price per kg of sand.

Original  $5600 \div 1000 = 5.6 \text{ p per kg}$

now  $5600 \div 960 = 5.8333... \text{ p per kg}$

$$\frac{0.2333...}{5.6} \times 100$$

$$4.1666... \%$$

$$\frac{4.167}{\dots\dots\dots} \%$$

(3)

26. A museum sells two types of ticket: adult tickets and child tickets.



In 2022, the museum sold 15000 child tickets.

In 2023, the museum sold a total of 112500 tickets.

Between 2022 and 2023, there was a 300% increase in the number of child tickets sold.

Between 2022 and 2023, there was a 125% increase in the total number of tickets sold.

Work out the percentage increase in adult tickets sold between 2022 and 2023.

	2022	2023
Adults	35000	52500
Children	15000	60000
Total	50000	112500

Handwritten annotations: An arrow from 15000 to 60000 is labeled  $\times 4$ . An arrow from 112500 to 50000 is labeled  $\div 2.25$ .

$$52500 - 35000 = 17500$$

$$\frac{17500}{35000} \times 100 = 50$$

.....50.....%

(5)

27.

James bought a house.

100



The value of the house decreased by 20% in 2021.

80

For three consecutive years, 2022, 2023 and 2024 the value of the house increased.

Each year the percentage increase in value was the same each time.

The value of the house at the end of 2024 was 6.48% more than he paid for the house.

Calculate the percentage increase in value of the house for each of the three of the three consecutive years.

$$80 \times y^3 = 106.48$$

$$y^3 = 1.331$$

$$y = 1.1$$

.....10.....%

(4)