



Guided practice worksheet

Questions are targeted at the grades indicated

To work out a multiplier for a percentage increase (e.g. increase of 40%) $100\% + 40\% = 140\% = \frac{140}{100} = 1.4$.

To work out a multiplier for a percentage decrease (e.g. decrease of 40%) $100\% - 40\% = 60\% = \frac{60}{100} = 0.6$.

1 Write down the single number you can multiply by to work out an increase of

- a 25%
- b 4%
- c 17%
- d 9%

2 Work out the single number you can multiply by to work out a decrease of

- a 25%
- b 4%
- c 17%
- d 9%

3 Mary earns £345 per week. She receives a pay rise of 7%.

What is her new weekly wage?

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4 A stereo costs £564 plus VAT at 17.5%.

Calculate the total cost of the stereo.

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5 All 'luxury items' are sold with VAT (value added tax) added onto them. The rate of VAT is $17\frac{1}{2}\%$. The cost price, to a shop keeper, of a TV set is £136. How much will it cost once VAT has been added?

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6 Mr Jones buys a new car for £14 995.

By the end of the year the value of the car has gone down by 40%. How much is the car now worth?

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7 A train ticket costs £54.

The price is increased by 6.5%.

Work out the new price of the train ticket.

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- 8 Sahil earns £35 000 per year.
He has a salary increase of 2.4%.
Work out Sahil's new salary.

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- 9 In a sale prices are reduced by 12%. A TV set normally costs £452.
Calculate its price in the sale.

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- 10 A toy costs £38.20
In a sale its price is reduced by 15%.
Calculate the sale price of the toy.

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- 11 Guy bought a car.
The total cost of the car was £2400 plus VAT at $17\frac{1}{2}\%$.
Work out the total cost of the car.

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- 12 The price of a TV was £650.
In a sale, the price is reduced by 35%.
Work out the sale price of the TV.

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1 Write

Remember to write one amount as the percentage of another, form a fraction then multiply by 100.

a £5 as a percentage of £20

b 5 kg as a percentage of 25 kg

c 3 m as a percentage of 60 m

d 60p as a percentage of £4

e 75 cm as a percentage of 3 m

f 700 m as a percentage of 14 km

2 Change these test results into percentages. Give your answers to 3 significant figures.

a 43 out of 250

b 69 out of 320

c 42 out of 215

d 38 out of 72

e 45 out of 120

f 37 out of 40

g 259 out of 1000

h 78 out of 356

3 At a school, 34 students were absent out of a total of 456.

What percentage of students were absent?

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4 Adam scored 76 out of 104 in a Biology test and 53 out of 75 in a French test. In which test did he do better? Give a reason for your answer.

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5 A football stadium has a capacity of 14 500.

At a match one weekend, 8900 people were present.

Work out the percentage of the stadium that was occupied.

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- 6 A man buys 24 bunches of flowers in a market for £20.
He then sells all of these for £2.25 each.

$$\text{Percentage profit} = \frac{\text{Profit}}{\text{original amount}} \times 100$$

a Work out his profit.

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b Work out his percentage profit.

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- 7 A breakfast cereal contains the following ingredients by weight:
toasted oat flakes 720 g, raw sugar 34 g, oat bran 76 g, honey 26 g, banana 57 g, hazelnuts 12 g.
What percentage of the packet is oat bran? Give your answer correct to one decimal place.

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- 8 A shop manager buys 6 DVD players for a total of £250. He sells 2 of these for £60 each. In order to sell the rest quickly he reduces the price by 30%. What is his percentage profit?

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- 9 A paperboy's weekly wage was £8.50.
After an increase his wage went up to £8.84.
Work out the percentage increase in his wage.

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- 10 In a sale, the price of an MP3 player is reduced from £68 to £53.04
Work out the percentage reduction in the price of the MP3 player.

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D

C



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To work out a multiplier for a percentage increase (e.g. increase of 40%) $100\% + 40\% = 140\% = \frac{140}{100} = 1.4$.

To work out a multiplier for a percentage decrease (e.g. decrease of 40%) $100\% - 40\% = 60\% = \frac{60}{100} = 0.6$.

1 Write down the multiplier for

- a an increase of 30%
- b an increase of 16%
- c an increase of 8%
- d an increase of 5.3%
- e a decrease of 30%
- f a decrease of 16%
- g a decrease of 8%
- h a decrease of 5.3%

2 Work out the multiplier as a decimal number that represents

- a an increase of 10% for 3 years
- b an increase of 12% for 4 years
- c an increase of 6% for 2 years
- d an increase of 3.4% for 2 years
- e a decrease of 30% for 4 years
- f a decrease of 5% for 2 years
- g a decrease of 28% for 3 years
- h a decrease of 10% for 3 years

3 £6500 is invested in a bank account for 4 years.
Compound interest is paid at a rate of 3%.
Calculate the total amount of interest paid over the 4 years.

Hint Remember to add interest before working out the next year's compound interest.

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4 £3000 is invested in a bank for 2 years.
Compound interest is paid at a rate of 4% per annum.
How much money is in the bank after 2 years?

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5 A house cost £200 000
Its value increases by 12% each year.
How much is the house worth after 2 years?

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D

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- 6 A car cost £12 000.
Its value depreciates at a rate of 15% per year.
What is the car worth after 2 years?

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- 7 £4500 is invested in a bank for 3 years.
Compound interest is paid at a rate of 3.5% per annum.
How much money is in the bank after 3 years?

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- 8 Alan bought a car for £3600.
Each year the total cost of the car depreciated by 15%.
Work out the value of the car 2 years after he bought it.

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- 9 John invests £2600 for 2 years at 3.1% per annum compound interest.
Calculate the amount of interest he will have earned after two years.

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- 10 Chris bought a car for £12 500.
The car lost 14% of its value in the first year.
In subsequent years the car lost 8% of its value each year.
Calculate how much the car was worth after 5 years.

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- 1 In a sale all the prices are reduced by 20%.
The sale price of a garden chair is £62.40
Work out the normal price of the garden chair.

When you are told that an item has been reduced by a percentage, subtract the given percentage from 100% to work out what percentage is left.

- 2 In a sale all prices are reduced by 15%.
The sale price of a washing machine is £357.
Work out the normal price of the washing machine.

- 3 In 2009, the numbers in the school were 4% higher than in 2008.
There were 1300 pupils in the school in 2009.
How many pupils were in the school in 2008?

When you are told that an item has been increased by a percentage, add the given percentage to 100% to work out what percentage there is now.

- 4 A stereo costs £564 which includes VAT at 17.5%.
Calculate the cost of the stereo before VAT was added.

- 5 In a sale a toy costs £38.25 after its price has been reduced by 15%.
Calculate the normal price of the toy.

- 6 Water expands by 4% when it is converted into ice.
How much water is needed in order to make 1 litre (1000 cm³) of ice?

- 7 In a sale all the normal prices are reduced by 15%.
In the sale Mandy pays £11.22 for a hat.
Calculate the normal price of the hat.

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- 8 Jerry receives a 4.2% pay rise.
His new salary is £37 512.
Work out his salary before the increase.

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- 9 Seb invests some money in a bank.
Compound interest is paid at a rate of 2.3%.
After 1 year there is £3478.20 in the account.
How much money did Seb invest?

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- 10 The value of a car depreciates by 14% each year.
After one year the car has a value of £8256.
Work out the original value of the car.

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