Finding the Original Value **Answers**

1. A shop offers a 25% discount in a sale. A dress has a sale price of £33.75. What was the original price?

   $\frac{33.75}{0.75}$ **= £45**

2. The price of a laptop is £345 after 20% VAT is added. What was the price before VAT was added?

   $\frac{345}{1.20}$ **= £287.50**

3. Charlotte works in a local pet shop. She was told to increase all prices by 5%. She increased a price to £42. What was the original price?

   $\frac{42}{1.05}$ **= £40**

4. A car depreciates in value by 20% during its first year. Its value now is £7850. What was its original price?

   $\frac{7850}{0.8}$ **= £9812.50**

5. The price of a bike increases by 12% to £168. What was the price of the bike before the increase?

   $\frac{168}{1.12}$ **= £150**

6. The total price for a holiday, including a 15% discount, was £799. What was the price of the holiday before the discount?

   $\frac{799}{0.85}$ **= £940**

7. A DVD player sells for £87 after a 20% increase in the store price. What was the original store price?

   $\frac{87}{1.20}$ **= £72.50**

8. The price of a train journey increased by 4%. The new fare was £23.40. What was the price of the train fare before the increase?

   $\frac{23.40}{1.04}$ **= £22.50**

Finding the Original Value

1. A shop offers a 25% discount in a sale. A dress has a sale price of £33.75. What was the original price?

2. The price of a laptop is £345 after 20% VAT is added. What was the price before VAT was added?

3. Charlotte works in a local pet shop. She was told to increase all prices by 5%. She increased a price to £42. What was the original price?

4. A car depreciates in value by 20% during its first year. Its value now is £7850. What was its original price?

5. The price of a bike increases by 12% to £168. What was the price of the bike before the increase?

6. The total price for a holiday, including a 15% discount, was £799. What was the price of the holiday before the discount?

7. A DVD player sells for £87 after a 20% increase in the store price. What was the original store price?

8. The price of a train journey increased by 4%. The new fare was £23.40. What was the price of the train fare before the increase?

Percentages

Expressing a Quantity as a Percentage of Another

Percentage is a measure of **proportion** - one quantity in relation to another.

It can be thought of as a very specific type of fraction, as percentages are **amounts per hundred**.

Expressing a quantity as a percentage of another is easy when the total amount is 100:

74 out of 100 pupils prefer sleeping to school.

$\frac{74}{100}$ is 74%. Easy.

In all other cases, convert the fraction to a decimal and multiply by 100.

$\frac{17}{56}$ YouTube videos you watched featured an American. What percentage is this?

$\frac{17}{56} = 0.304$ (to 3d.p.)

$0.304 \times 100 =$ **30.4%**

Finding a Percentage of a Quantity

(**Remember**: The word '**of**' is just an alternative word for **multiply**).

Examples:

1. 42% of 563g $= \frac{42}{100} \times 563$

   $= 0.42 \times 563$

   = **236.46g**

   Don't forget $\frac{42}{100}$ is the same as $42 \div 100$

2. 125% of £3500 $= \frac{125}{100} \times 3500$

   $= 1.25 \times 3500$

   = **£4375**

Calculating Percentage Change

The change in amount could be an **increase** or **profit**, or a **decrease** or **loss**.

The meaning of your calculation will depend on the context.

$$\text{percentage change} = \frac{\text{change}}{\text{original value}} \times 100$$

Example:

The first episode of the new X Factor series had 7.33 million viewers. The second episode had 6.88 million viewers. What was the percentage change in the number of viewers?

The change in the number of viewers is 7.33 million – 6.88 million = 0.45 million **fewer** people than the week before.

So, the percentage **decrease** is $\frac{0.45}{7.33} \times 100 =$ **6.14%** (to 2d.p.)

Increasing or Decreasing a Quantity by a Given Percentage

Increase

The original value is 100%. A percentage increase will **add** to this amount.

100% (original value) + **percentage increase** (C)

We **can** just find the percentage change and **add** it on to the original value.

But... here is the **one-step shortcut**:

Result of percentage increase = original amount × $(1 + \frac{C}{100})$

All we have done is included the original amount (the '1') in our calculation at the beginning to save us time adding it on later.

Decrease

The original value is 100%. A percentage decrease will **subtract** from this amount.

100% (original value) – **percentage increase** (C)

We **can** just find the percentage change and **subtract** it from the original value.

But... here is the **one-step shortcut**:

Result of percentage decrease = original amount × $(1 - \frac{C}{100})$

Like before, the original amount (the '1') is included in our calculation at the beginning to save us time subtracting it later.

Remember, when calculating with percentages we have to convert to their decimal form first (÷100).

$\frac{C}{100}$ = 1 (original value) $\frac{C}{100}$ = C ÷ 100 (percentage change)

Examples:

Increase

My savings account has £432. I receive 4% interest. How much money do I have now?

The percentage increase is 4% so C = 4

Resulting amount = $432 \times (1 + \frac{4}{100})$

$= 432 \times (1 + 0.04)$

$= 432 \times 1.04$

= **£449.28**

Decrease

My monthly pay is £2800, but I am charged 8% for my pension contribution.
How much does this leave me with?

The percentage decrease is 8% so C = 8

Resulting amount $= 2800 \times (1 - \frac{8}{100})$

$= 2800 \times (1 - 0.08)$

$= 2800 \times 0.92$

= **£2576**

Finding the Original Value

Sometimes we are given the percentage change and the new value and we have to find the original value.

Very important: Is the percentage change (C) an increase or a decrease?

A percentage increase will add to the original amount.

Original value (100%) + percentage change

So: original amount = new amount ÷ (100% + C)

$$\text{original amount} = \frac{\text{new amount}}{1 + \frac{C}{100}}$$

A percentage decrease will be subtracted from the original amount.

Original value(100%) − percentage change

original amount = new amount ÷ (100% – C)

$$\text{original amount} = \frac{\text{new amount}}{1 - \frac{C}{100}}$$

Remember, when calculating with percentages we have to convert to their decimal form first (÷100).

$\frac{C}{100} = 1$ (original value) $\frac{C}{100} = C \div 100$ (percentage change)

Examples:

Percentage Increase

The viewing figures for Gogglebox increase by 6% from episode 1 to episode 2. By episode 2, the ratings are 8.32 million. How many people watched episode 1?

A percentage change will add to the original amount.

$$\text{Original amount} = \frac{8.32}{1 + 0.06}$$
$$= \frac{8.32}{0.06}$$
$$= \textbf{7.85 million} \text{ (to 2d.p.) viewers watched episode 1.}$$

Percentage Decrease

The viewing figures for Eastenders decrease by 12% from Monday's episode to Tuesday's episode. On Tuesday, the ratings were 6.42 million. What were the ratings on Monday?

A percentage change will subtract from the original amount.

$$\text{Original amount} = \frac{6.42}{1 - 0.12}$$
$$= \frac{6.42}{0.88}$$
$$= \textbf{7.30 million} \text{ (to 2d.p.) viewers watched Monday's episode.}$$

Expressing a Quantity as a Percentage of Another Card Sort **Answers**

Instructions:

1. Cut out each question and answer card.
2. Match each question to its correct answer.

Express 36 as a percentage of 50.	**72%**
In June, it rained on 15 days. What percentage of the days did it rain for?	**50%**
Express 6p as a percentage of £1.50.	**4%**
Express 112 as a percentage of 320.	**35%**
Express 48 minutes as a percentage of 2 hours.	**40%**

Express 20cm as a percentage of 2m.	**10%**
A football team scored 75 goals in one season. 15 of these were scored by the captain. What percentage of all goals scored were scored by the captain?	**20%**
On a test, Molly scored 38 marks out of 50. What percentage of the marks did Molly lose?	**24%**
In Year 8, 110 students learn Spanish and the remaining 140 students learn French. What percentage of Year 8 learn French?	**56%**
On Monday, 3 students in a class of 25 were late for school. What percentage of the class were late for school?	**12%**

Expressing a Quantity as a Percentage of Another Card Sort

Instructions:

1. Cut out each question and answer card.
2. Match each question to its correct answer.

Express 36 as a percentage of 50.

Express 20cm as a percentage of 2m.

In June, it rained on 15 days. What percentage of the days did it rain for?

A football team scored 75 goals in one season. 15 of these were scored by the captain. What percentage of all goals scored were scored by the captain?

Express 6p as a percentage of £1.50.

On a test, Molly scored 38 marks out of 50. What percentage of the marks did Molly lose?

Express 112 as a percentage of 320.

In Year 8, 110 students learn Spanish and the remaining 140 students learn French. What percentage of Year 8 learn French?

Express 48 minutes as a percentage of 2 hours.

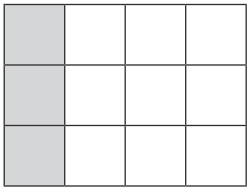
On Monday, 3 students in a class of 25 were late for school. What percentage of the class were late for school?

56%	10%
40%	72%
12%	24%
50%	35%
4%	20%

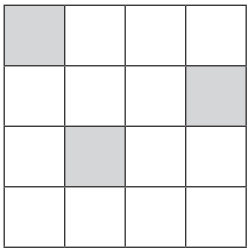
Expressing a Quantity as a Percentage of Another

A01 – Using and Applying

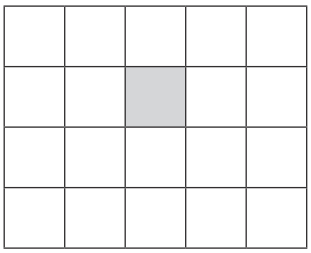
1. What percentage has been shaded on the following diagram?



2. What percentage has been shaded on the following diagram?



3. What percentage has **not** been shaded on the following diagram?



4. Richard scores 6 out of 8 on a quiz. Calculate his score as a percentage.

5. Natalie bakes 500 cupcakes for the summer fair. She sells 400 of these cupcakes. What percentage of the cupcakes did Natalie sell?

Expressing a Quantity as a Percentage of Another

A02 – Reasoning and Fluency

1. Express 25p as a percentage of £2.00.

2. Express 135cm as a percentage of 3.6m.

3. Elsie bakes 300 brownies for a summer fete. She sells 285 of them. Elsie says that she sold 85% of her brownies. Is Elsie correct? Show how you decide.

4. Ellie scored 35 out of 50 on her science test.
   Tom scored 40 out of 60 on his maths test.
   Who scored the higher percentage of marks?

5. In a class of 28 students, 4 were absent. Robert says that 28 divided by 4 is 7 so 7% are absent. Show how Robert is incorrect.

Expressing a Quantity as a Percentage of Another

A03 – Problem Solving and Worded Questions

1. Jodie scored 15 out of 40 in a drama test.

   She scored 28 out of 60 on her maths test.

   She scored 35 out of 50 on her English test.

   She scored 15 out of 30 on a French test.

   Arrange the subjects in order, starting with the lowest percentage score.

2. Ameena receives £5 from her Grandfather. She gives £2 to her brother. What percentage of the original amount does she have left?

3. Lauren scored 34 out of 40 in a quiz. Ashley scored 80% in the same quiz. Who achieved the higher score? Show all of your working.

4. In a class of 30 students:
   - 7 students have a cat;
   - $\frac{1}{2}$ of the students have a dog;
   - 2 students have a rabbit;
   - The rest don't have any pets;
   - No student has more than one pet.

   What percentage of students don't have any pets?

5. The price of a TV is £200.

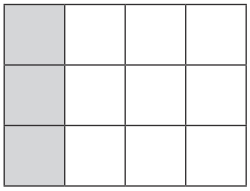
   In a sale, the price is decreased by £35.

   Calculate the decrease as a percentage of the original price.

Expressing a Quantity as a Percentage of Another **Answers**

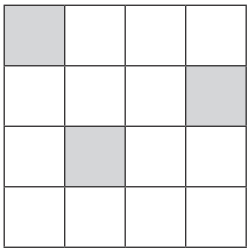
A01 – Using and Applying

1. What percentage has been shaded on the following diagram?



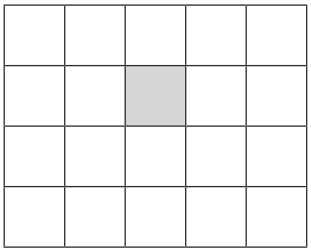
25%

2. What percentage has been shaded on the following diagram?



18.75%

3. What percentage has **not** been shaded on the following diagram?



95%

4. Richard scores 6 out of 8 on a quiz. Calculate his score as a percentage.

75%

5. Natalie bakes 500 cupcakes for the summer fair. She sells 400 of these cupcakes. What percentage of the cupcakes did Natalie sell?

80%

A02 – Reasoning and Fluency

1. Express 25p as a percentage of £2.00.

£2 = 200p

$\frac{25}{200} \times 100 = 12.5\%$

2. Express 135cm as a percentage of 3.6m.

   3.6m = 360cm

   $\frac{135}{360}$ **× 100 = 37.5%**

3. Elsie bakes 300 brownies for a summer fete. She sells 285 of them. Elsie says that she sold 85% of her brownies. Is Elsie correct? Show how you decide.

   $\frac{285}{300}$ **× 100 = 95%**

   Elsie is not correct.

4. Ellie scored 35 out of 50 on her science test.

   Tom scored 40 out of 60 on his maths test.

   Who scored the higher percentage of marks?

   $\frac{35}{50}$ **× 100 = 70%**

   $\frac{40}{60}$ **× 100 = 66.6%**

   Ellie

5. In a class of 28 students, 4 were absent. Robert says that 28 divided by 4 is 7 so 7% are absent. Show how Robert is incorrect.

   $\frac{4}{28}$ **× 100 = 14.3% (to 1d.p.)**

   Robert is incorrect.

A03 – Problem Solving and Worded Questions

1. Jodie scored 15 out of 40 in a drama test.

   She scored 28 out of 60 on her maths test.

   She scored 35 out of 50 on her English test.

   She scored 15 out of 30 on a French test.

   Arrange the subjects in order, starting with the lowest percentage score.

   $\frac{15}{40}$ **× 100 = 37.5%**

   $\frac{28}{60}$ **× 100 = 46.7% (to 1d.p.)**

   $\frac{35}{50}$ **× 100 = 70%**

   $\frac{15}{30}$ **× 100 = 50%**

   Subjects in ascending order:

   1. **drama**
   2. **maths**
   3. **French**
   4. **English**

2. Ameena receives £5 from her Grandfather. She gives £2 to her brother. What percentage of the original amount does she have left?

   £5 – £2 = £3

   $\frac{3}{5}$ × 100 = 60%

   Ameena has 60% left.

3. Lauren scored 34 out of 40 in a quiz. Ashley scored 80% in the same quiz. Who achieved the higher score? Show all of your working.

   $\frac{34}{40}$ × 100 = 85%

   Lauren achieved the higher score.

4. In a class of 30 students:
   - 7 students have a cat;
   - $\frac{1}{2}$ of the students have a dog;
   - 2 students have a rabbit;
   - The rest don't have any pets;
   - No student has more than one pet.

   What percentage of students don't have any pets?

   30 – 7 – 15 – 2 = 6 students don't have any pets.

   $\frac{6}{30}$ × 100 = 20%

   20% of the class don't have any pets.

5. The price of a TV is £200.

   In a sale, the price is decreased by £35.

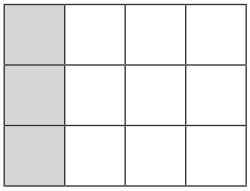
   Calculate the decrease as a percentage of the original price.

   $\frac{35}{200}$ × 100 = 17.5%

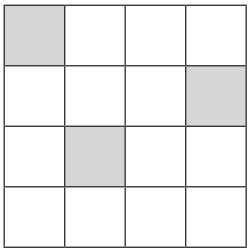
Expressing a Quantity as a Percentage of Another

A01 – Using and Applying

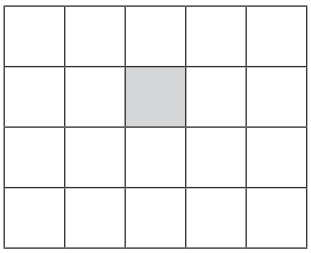
1. What percentage has been shaded on the following diagram?



2. What percentage has been shaded on the following diagram?



3. What percentage has **not** been shaded on the following diagram?



4. Richard scores 6 out of 8 on a quiz. Calculate his score as a percentage.

5. Natalie bakes 500 cupcakes for the summer fair. She sells 400 of these cupcakes. What percentage of the cupcakes did Natalie sell?

A02 – Reasoning and Fluency

1. Express 25p as a percentage of £2.00.

2. Express 135cm as a percentage of 3.6m.

3. Elsie bakes 300 brownies for a summer fete. She sells 285 of them. Elsie says that she sold 85% of her brownies. Is Elsie correct? Show how you decide.

4. Ellie scored 35 out of 50 on her science test.
   Tom scored 40 out of 60 on his maths test.
   Who scored the higher percentage of marks?

5. In a class of 28 students, 4 were absent. Robert says that 28 divided by 4 is 7 so 7% are absent. Show how Robert is incorrect.

A03 – Problem Solving and Worded Questions

1. Jodie scored 15 out of 40 in a drama test.
   She scored 28 out of 60 on her maths test.
   She scored 35 out of 50 on her English test.
   She scored 15 out of 30 on a French test.
   Arrange the subjects in order, starting with the lowest percentage score.

2. Ameena receives £5 from her Grandfather. She gives £2 to her brother. What percentage of the original amount does she have left?

3. Lauren scored 34 out of 40 in a quiz. Ashley scored 80% in the same quiz. Who achieved the higher score? Show all of your working.

4. In a class of 30 students:
   - 7 students have a cat;
   - $\frac{1}{2}$ of the students have a dog;
   - 2 students have a rabbit;
   - The rest don't have any pets;
   - No student has more than one pet.

   What percentage of students don't have any pets?

5. The price of a TV is £200.

   In a sale, the price is decreased by £35.

   Calculate the decrease as a percentage of the original price.

Percentage Change **Answers**

1. In January, a mobile phone shop sold 100 phones. In February, they sold 92 phones. Represent this difference as a percentage change.

   100 – 92 = 8

   $\frac{8}{100}$ **× 100 = 8% decrease.**

2. A piece is cut from a 130cm length of wood so that the remaining length is 104cm. What percentage of the wood has been cut off?

   130 – 104 = 26

   $\frac{26}{130}$ **× 100 = 20% of the wood was cut off.**

3. There are now 30 boys in a class that originally had 24 boys in it. What was the percentage increase in the number of boys in the class?

   30 – 24 = 6

   $\frac{6}{24}$ **× 100 = 25% increase in the number of boys.**

4. Last year, there were 300 students in Year 7. This year, there are 315 students. Show that this is a 5% increase.

   315 – 300 = 15

   $\frac{15}{300}$ **× 100 = 5% increase.**

5. A piece of art was bought for £600. Six months later, it was sold for £675. What percentage profit did the seller make?

   675 – 600 = 75

   $\frac{75}{600}$ **× 100 = 12.5% profit.**

6. In a sale, trainers originally costing £70 are reduced to £49. Calculate the percentage change.

   70 – 49 = 21

   $\frac{21}{70}$ **× 100 = 30% decrease.**

7. Josh invests £3500. When his investment matures, he receives £4200. Work out the percentage increase in his investment.

   4200 – 3500 = 700

   $\frac{700}{3500}$ **× 100 = 20% increase in his investment.**

8. A car company bought a car for £8000. Two years later, they sold the car for £7200. Calculate their percentage loss.

8000 – 7200 = 800

$\frac{800}{8000}$ **× 100 = 10% loss.**

Percentage Change

1. In January, a mobile phone shop sold 100 phones. In February, they sold 92 phones. Represent this difference as a percentage change.

2. A piece is cut from a 130cm length of wood so that the remaining length is 104cm. What percentage of the wood has been cut off?

3. There are now 30 boys in a class that originally had 24 boys in it. What was the percentage increase in the number of boys in the class?

4. Last year, there were 300 students in Year 7. This year, there are 315 students. Show that this is a 5% increase.

5. A piece of art was bought for £600. Six months later, it was sold for £675. What percentage profit did the seller make?

6. In a sale, trainers originally costing £70 are reduced to £49. Calculate the percentage change.

7. Josh invests £3500. When his investment matures, he receives £4200. Work out the percentage increase in his investment.

8. A car company bought a car for £8000. Two years later, they sold the car for £7200. Calculate their percentage loss.

Decreasing a Quantity by a Given Percentage

1. Decrease 480 by 15%

2. Decrease 150 by 12%

3. Decrease £7.50 by 2%

4. A shoe shop reduces its prices by 25% in the sale. A pair of trainers were £58. What is the new price of the trainers?

5. Since last year, the price of houses has decreased by 5%. How much would you expect to pay this year for a house that cost £145 000 last year?

6. In 2015, the number of students in Year 7 was 310. In 2016, the number of Year 7 students decreased by 30%. What is the difference between the number of Year 7s in 2015 and 2016?

7. The average queueing time at the till in a local supermarket recently decreased by 15%. The average queuing time used to be 4 minutes. What is the new average queueing time?

8. A 5% discount is applied to the cost of a meal as a special offer. If the meal cost £75, what is the total charge after the discount is applied?

Decreasing a Quantity by a Given Percentage
Answers

1. 0.85 × 480 = 408

2. 0.88 × 150 = 132

3. 0.98 × £7.50 = £7.35

4. 0.75 × £58 = £43.50

5. 0.95 × 145 000 = £137 750

6. 0.70 × 310 = 217 students
   310 − 217 = 93 students

7. 0.85 × 4 = 3.4 minutes or 3 minutes 24 seconds

8. 0.95 × £75 = £71.25

Increasing a Quantity by a Given Percentage

1. Increase 25 by 35%

2. Increase 46 by 15%

3. Increase £2.50 by 8%

4. a) If a train fare goes up by 2%, what is the decimal multiplier you would use to work out the new cost?

   b) The original price of a train fare was £2. Calculate the price after the increase of 2%.

5. The cost of a camera is £285 plus VAT. The rate of VAT is 20%. Calculate the cost of the camera.

6. The number of children attending swimming lessons increased by 35%. 20 children attended the lessons before the increase. How many children now attend swimming lessons after the increase?

7. 2575 people visited the zoo during April. The manager at the zoo predicts that there will be a 40% increase in visitors during May. How many visitors does the manager predict will visit the zoo during May?

8. Joshua gets two quotes for car repairs:
   Quote 1: £780 VAT included
   Quote 2: £675 plus VAT

   The rate of VAT is 20%. Which is the more expensive quote? Show your working.

Increasing a Quantity by a Given Percentage **Answers**

1. 1.35 × 25 = 33.75

2. 1.15 × 46 = 52.9

3. 1.08 × £2.50 = £2.70

4. a) 1.02

   b) 1.02 × £2 = £2.04

5. 1.20 × £285 = £342

6. 1.35 × 20 = 27 children

7. 1.40 × 2575 = 3605 people

8. Quote 1: £780

   Quote 2: 1.20 × £675 = £810

   Quote 2 is the more expensive quote.

Increasing or Decreasing a Quantity by a Given Percentage

1. Ellen works part time and earns £112 per week. Her employer agrees to raise her weekly wages by 3%. What is Ellen's new weekly wage?

2. Matthew buys a t-shirt in a sale. Its original cost was £35 but in the sale, there is 30% off this price. How much does Matthew pay for his t-shirt?

3. Write the decimal multiplier you can use to work out the value after an increase of 67%.

4. Increase 280 by 150%

5. Write the decimal multiplier you can use to work out the value after a decrease of 2%.

6. The cost of sending a parcel increases by 15%. A 1kg parcel costs £2.80 to send. Work out the new price to send the parcel.

7. Laura buys a dress originally costing £55, which is then reduced by 35% in the sale. How much money does Laura save?

8. Charlotte wants to improve her 1500m running time by 5%. Her current time is 8 minutes. What is her new target time?

Increasing or Decreasing a Quantity by a Given Percentage **Answers**

1. 1.03 × £112 = £115.36

2. 0.70 × £35 = £24.50

3. 1.67

4. 2.5 × 280 = 700

5. 0.98

6. 1.15 × £2.80 = £3.22

7. 0.65 × £55 = £35.75
   £55 − £35.75 = £19.25 saved

8. 0.95 × 8 = 7.6 minutes or 7 minutes 36 seconds

Finding a Percentage of a Quantity Card Sort **Answers**

Instructions:

1. Cut out each question and answer card.
2. Match each question to its correct answer.

Calculate 35% of 120.	**42**
What is 40% of £2.50?	**£1**
A family meal costs £65. If Richard were to leave a 10% tip, how much would he need to leave?	**£6.50**
What is 12% of 120?	**14.4**
Sam has a bag containing 60 sweets. During a film, he eats 65% of them. How many sweets did Sam eat?	**39**

What is 3% of 90?	**2.7**
Find 15% of 400.	**60**
Calculate 5% of 125.	**6.25**
There are 300 students in Year 9. If 75% of the students go on a school trip, how many students stay in school?	**75**
There were 180 people on a train. 25% got off at the next stop. Calculate the number of people who got off.	**45**

Finding a Percentage of a Quantity Card Sort

Instructions:

1. Cut out each question and answer card.
2. Match each question to its correct answer.

Calculate 35% of 120.

What is 40% of £2.50?

A family meal costs £65. If Richard were to leave a 10% tip, how much would he need to leave?

What is 12% of 120?

Sam has a bag containing 60 sweets. During a film, he eats 65% of them. How many sweets did Sam eat?

What is 3% of 90?

Find 15% of 400.

Calculate 5% of 125.

There are 300 students in Year 9. If 75% of the students go on a school trip, how many students stay in school?

There were 180 people on a train. 25% got off at the next stop. Calculate the number of people who got off.

60	75
42	6.25
14.4	£1
45	£6.50
2.7	39

Mixed Percentages **Answers**

1. Increase 485 by 14%.

   1.14 × 485 = 552.9

2. Calculate 35% of 80.

   0.35 × 80 = 28

3. A coat, originally costing £65, was reduced by 20%. How much does the coat now cost?

   0.80 × 65 = £52

4. I bought a bike for £120. Three months later, I then sold the bike for £150. What was my profit as a percentage of the original price?

   150 – 120 = 30

   $\frac{30}{120}$ **× 100 = 25%**

5. Elizabeth bought a laptop. She paid £450 for her laptop after it had been reduced by 20%.
   Saiyid bought his laptop in a 25% off sale. It originally cost £520.
   Who has saved more money? Show your working clearly.

   Elizabeth

   $\frac{450}{0.8}$ **= £562.50**

   £562.50 – £450 = £112.50 saving

   Saiyid

   0.75 × 520 = £390

   520 – 390 = £130 saving

   Saiyid saved more money.

6. Bus fares go up by 12%. Before the increase, my journey cost £3. How much will the bus fare now be?

   1.12 × 3 = £3.36

7. Rebecca scored 45 out of 80 on a maths test.

   Natalie scored 55 out of 100 on a science test.

   Who scored the highest percentage of marks?

   $\frac{45}{80} \times 100 = 56.25\%$

   $\frac{55}{100} \times 100 = 55\%$

   Rebecca scored the highest percentage of marks.

8. The price of a washing machine is £325 after a 20% discount is applied. What was the original price?

   $\frac{325}{0.80} = £406.25$

9. The cost of a camera is £350 plus VAT. The rate of VAT is 20%. What is the total price for the camera?

   350 × 1.20 = £420

10. Write the decimal multiplier that you would use to work out the value after a decrease of 0.3%.

    0.997

Mixed Percentages

1. Increase 485 by 14%.

2. Calculate 35% of 80.

3. A coat, originally costing £65, was reduced by 20%. How much does the coat now cost?

4. I bought a bike for £120. Three months later, I then sold the bike for £150. What was my profit as a percentage of the original price?

5. Elizabeth bought a laptop. She paid £450 for her laptop after it had been reduced by 20%.
   Saiyid bought his laptop in a 25% off sale. It originally cost £520.
   Who has saved more money? Show your working clearly.

6. Bus fares go up by 12%. Before the increase, my journey cost £3. How much will the bus fare now be?

7. Rebecca scored 45 out of 80 on a maths test.
   Natalie scored 55 out of 100 on a science test.
   Who scored the highest percentage of marks?

8. The price of a washing machine is £325 after a 20% discount is applied. What was the original price?

9. The cost of a camera is £350 plus VAT. The rate of VAT is 20%. What is the total price for the camera?

0. Write the decimal multiplier that you would use to work out the value after a decrease of 0.3%.