

1. Multipliers

We can use **multipliers** to help find a percentage of something.

Calculate 42% of 500

To find the multiplier divide by 100:

$$42\% = 42 \div 100 = \mathbf{0.42}$$

$$\text{Multiply 500 by 0.42: } 500 \times 0.42 = \mathbf{210}$$

Calculate 87% of 94

To find the multiplier, divide by 100:

$$87\% = 87 \div 100 = \mathbf{0.87}$$

$$\text{Multiply 94 by 0.87: } 94 \times 0.87 = \mathbf{81.78}$$

2. Percentage increase

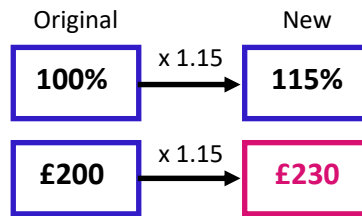
A bank pays 15% interest per year.

How much will I have if I invest £200 for one year?

$$100\% + 15\% = 115\%$$

115% is equivalent to 1.15

1.15 is the multiplier.



After 1 year I will have **£230**

3. Percentage decrease

A woman goes out to buy an £18 scarf.

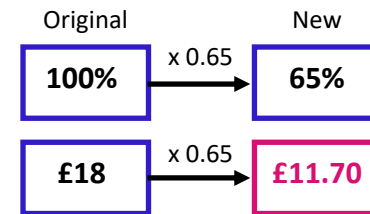
The shop is having a 35% off sale.

How much did the woman pay for the scarf?

$$100\% - 35\% = 65\%$$

65% is equivalent to 0.65

0.65 is the multiplier.



The scarf will cost **£11.70**

Maths, Y8 - Percentages (Calculator)

4. Percentage change

Billy has had a pay increase from £9.48 per hour to £9.83 per hour.

Write the increase as a percentage.

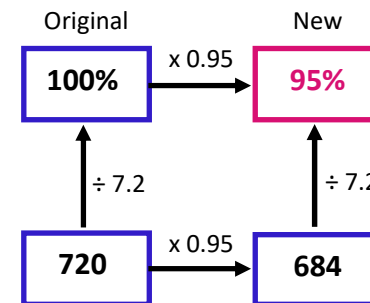
$$\text{actual increase in hourly pay: } \mathbf{£9.83 - £9.48 = £0.35}$$

$$\text{increase as a percentage: } \frac{0.35}{9.48} \times 100\%$$

$$\text{using a calculator: } \frac{0.35}{9.48} \times 100 = \mathbf{3.7\%} \text{ (1 d.p.)}$$

The number of workers at a factory is reduced from 720 to 684.

Calculate the percentage reduction.



684 is 95% of 720.

$$100\% - 95\% = \mathbf{5\% \text{ reduction}}$$