Maths, Y8—Percentages (Non Calculator)

1. Finding percentages of amounts (without a calculator)

Break down 100% into building blocks to work out other percentages of an amount.

Find 10% of 130

÷10 ⟵ 100% of 130 = 130 ⟶ ÷10

10% of 130 = 13

Find 50% of 130

÷2 ⟵ 100% of 130 = 130 ⟶ ÷2

50% of 130 = 65

We can use this 10% to help us to build other multiples of 10

Find 1% of 130

÷100 ⟵ 100% of 130 = 130 ⟶ ÷100

1% of 130 = **1.3**

Find 40% of 130

x4 ⟵ 10% of 130 = 13 ⟶ x4

40% of 130 = 52

Find 5% of 130

÷2 ⟵ 10% of 130 = 13 ⟶ ÷2

5% of 130 = 6.5

Use these facts to find 46% of 130

10% = 13 40% = 52

1% = **1.3** 5% = 6.5

So 46% = 52 + 1.3 + 6.5 = 59.8

2. Percentage increase

A bank pays 15% interest per year.

How much will I have if I invest £20 for one year?

Step 1 - find 15% of £20:

10% is £2, 5% is £1,

so 15% is £2 + £1 = £3

Step 2 - add it on:

£20 + £3 = **£23**

We started with 100% (**£20**)

We added on 15% (**£3**)

We are left with 115% (**£23**)

So the account will have £23 in it after one year

3. Percentage decrease

A pair of shoes is in a sale.

The sale offers 20% off all prices.

The shoes originally cost £31.

What is the price of the shoes in the sale?

This question needs 2 calculations.

Work out the amount of money taken off.

10% = £3.10 so 20% = £6.20

Work out the new cost.

£6.20 off leaves

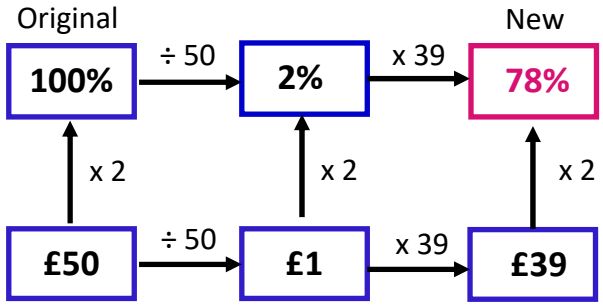
£31 - £6.20

= **£24.80 to pay**

4. Percentage change

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

Work out the percentage decrease in price.

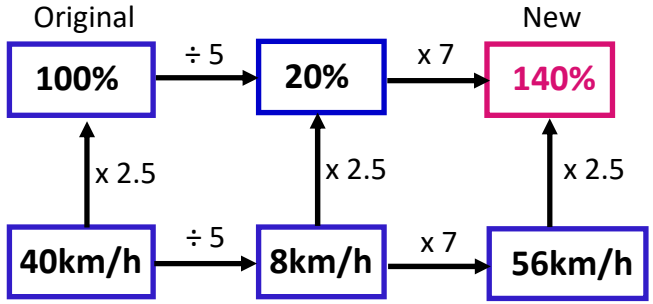


100% - 78% = **22% decrease**

The non-calculator method is the same as the calculator method, although sometimes an extra step maybe required to keep the calculations manageable

A car is travelling at 40 km/h. The car increases its speed to 56 km/h.

Calculate the percentage increase in the speed of the car.



140% - 100% = **40% increase**