

## Percentages

There are three different types of percentage questions:

1. **Find the % of a value**

*Example*

Find 10% of £33

$$0.10 \times 33 = \text{£}3.30$$

2. **Express a value as a percentage of another value**

Give 25p as a percentage of £2.00

1. Convert both values so they are the same:  
25p & 200p

2. Divide the part by the whole:

$$\frac{25 \text{ (part)}}{200 \text{ (whole)}}$$

3. Multiply by 100  
 $(25 \div 200) \times 100$

— 25p as a percentage of £2  
 $(25 \div 200) \times 100 = 12.5\%$

3. **Finding a % for an unspecified original value**

Price increase

A house increases in value by 25% to £156,000. Find the value before the rise.

An increase of 25%

**means**

the value is now 125% of the original price

1. Divide the value by 125 to get a unit value

$$£156,000 \div 125 = £1,248$$

2. Multiply by 100 to get the original value (100% of the price)

$$(£156,000 \div 125) \times 100$$

The original value was

$$(£156,000 \div 125) \times 100 = £124,800$$

Price decrease

A car decreases in value by 22% and after 1 year is worth £9,750. What was the original value?

A decrease of 22%

**means**

the value is now 78% of the original price

1. Divide the value by 78 to get a unit value

$$£9,750 \div 78 = £125$$

2. Multiply by 100 to get the original value (100% of the price)

$$(£15,000 \div 78) \times 100$$

The original value was

$$(£15,000 \div 78) \times 100 = £12,500$$