

## Maths Knowledge Organiser

### Basic

Percentage	<b>Number of parts per 100.</b>	31% means $\frac{31}{100}$
Finding 10%	To find <b>10%</b> , <b>divide by 10</b>	10% of £36 = $36 \div 10 = £3.60$
Finding 1%	To find <b>1%</b> , <b>divide by 100</b>	1% of £8 = $8 \div 100 = £0.08$
Percentage Change	$\frac{\text{Difference}}{\text{Original}} \times 100\%$	A games console is bought for £200 and sold for £250.  % change = $\frac{50}{200} \times 100 = 25\%$
Fractions to Decimals	<b>Divide the numerator by the denominator</b> using the bus stop method.	$\frac{3}{8} = 3 \div 8 = 0.375$
Decimals to Fractions	<b>Write as a fraction</b> over 10, 100 or 1000 and simplify.	$0.36 = \frac{36}{100} = \frac{9}{25}$
Percentages to Decimals	<b>Divide by 100</b>	$8\% = 8 \div 100 = 0.08$
Decimals to Percentages	<b>Multiply by 100</b>	$0.4 = 0.4 \times 100\% = 40\%$
Fractions to Percentages	Percentage is just a fraction out of 100. <b>Make the denominator 100 using equivalent fractions.</b>  When the denominator doesn't go in to 100, use a calculator and <b>multiply the fraction by 100.</b>	$\frac{3}{25} = \frac{12}{100} = 12\%$  $\frac{9}{17} \times 100 = 52.9\%$
Percentages to Fractions	Percentage is just a fraction out of 100. <b>Write the percentage over 100</b> and simplify.	$14\% = \frac{14}{100} = \frac{7}{50}$

### Calculating with Percentages

Increase or Decrease by a Percentage	Non-calculator: <b>Find the percentage</b> and <b>add</b> or <b>subtract</b> it from the <b>original</b> amount.  Calculator: Find the <b>percentage multiplier</b> and multiply.	<u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 $500 + 100 = 600$  <u>Decrease 800 by 17% (Calc):</u> $100\% - 17\% = 83\%$ $83\% \div 100 = 0.83$ $0.83 \times 800 = 664$
Percentage Multiplier	The <b>number</b> you <b>multiply</b> a quantity by to <b>increase</b> or <b>decrease</b> it by a <b>percentage</b> .	The multiplier for increasing by 12% is 1.12  The multiplier for decreasing by 12% is 0.88  The multiplier for increasing by 100% is 2.