
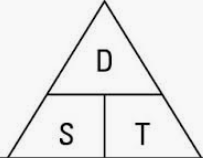



Year 8 Strand 4

Topic/Skill	Definition/Tips	Example
Express one quantity as a percentage of another	Turn one quantity off another into a fraction and multiply by 100	Express 15 as a fraction of 60 $15/60 \times 100 = 25\%$
Find percentage multiplier	Add / subtract % to 100 and turn into a decimal	Find the % multiplier when increasing by 12%. $100\%+12\% = 112\%=1.12$
Increase / decrease by a percentage	Calculate percentage of amount and add/subtract to the original amount	Increase 30 by 10%. 10% of 30 = 3 $30 + 3 = 33$ Or $30 \times 1.1 = 33$
Convert between percentage and decimal	Divide your % by 100 to get a decimal. Multiply decimal by 100 to get a percentage	e.g. $12\% = 12/100 = 0.12$ e.g. $0.045 = 4.5\%$
Reverse %	Divide by the percentage multiplier to calculate value prior to increase / decrease	A dress is on sale with a 25% discount and costs £50. What did it cost prior to the sale? $100-25=75\%=0.75$ $50 / 0.75 = \pounds66.67$
Compound interest / depreciation	Increase / decrease an amount by a percentage over a given time period	Increase £2000 by 5% compound interest over 7 years . 2000×1.05^7
ratio	A ratio is a way to show a relationship or compare two numbers of the same kind	e.g. the ratio of girls to boys is 2:1 meaning that there are twice as many girls as boys
Equivalent ratio		e.g. $1:2 = 2:4$
Express a ratio in the form 1:n	Use division to find the ratio in the form 1:n	Express 2:3 in the ratio 1:n Dividing both sides by 2 gives 1:1.5
Divide in a given ratio	Divide the quantity to share by the number of shares to find the value of 1 share.	share £20 in the ratio 3:2  draw bar model showing ratio 3:2 and total length £20 find 1 part is £4 answer is £12 : £8
Speed, distance and time	If you know 2 of the three values (speed (s), distance (d), time(t)) you can calculate the missing value using $d=s/t$	 $D = S \times T$ $S = D \div T$ $T = D \div S$
Write speed in different units	You can write a statement with an = sign to convert your units	E.g. convert 100 km/h to metres/second $100\text{km}=60 \text{ minutes}$ $100000\text{m}=3600 \text{ seconds (divide by 3600)}$ $27.8\text{m}=1 \text{ second}$ So speed is 27.8 ms^{-1}
density, mass and volume	If you know 2 of the three values (density(d), mass(m), time(t)) you can calculate the missing value using $d=m/v$	Mass Density Volume  $\text{Volume} = \frac{\text{Mass}}{\text{Density}}$ $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$ $\text{Mass} = \text{Density} \times \text{Volume}$

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