

# Y8 Maths Knowledge Organiser Topic 13: Percentages 2

<p><b>What must I be able to do?</b></p> <p>You may need to revise the following:</p> <ul style="list-style-type: none"> <li>• <a href="#">Year 7 Topic 11: Percentages 1</a></li> </ul> <p><b>New content:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use percentages greater than 100%</li> <li><input type="checkbox"/> Express one quantity as a percentage of another             <ul style="list-style-type: none"> <li>➤ Sparx M235</li> </ul> </li> <li><input type="checkbox"/> Compare values using percentages             <ul style="list-style-type: none"> <li>➤ Sparx M905, M437</li> </ul> </li> <li><input type="checkbox"/> Use multipliers to find a percentage of a number</li> <li><input type="checkbox"/> Use multipliers to increase and decrease by a percentage             <ul style="list-style-type: none"> <li>➤ Sparx M533</li> </ul> </li> <li><input type="checkbox"/> Reverse percentages: find the original quantity after a percentage increase or decrease             <ul style="list-style-type: none"> <li>➤ Sparx M528</li> </ul> </li> </ul>	<p><b>Key vocabulary</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;"><b>Multiplier</b></td> <td style="padding: 5px;">The <u>decimal</u> value you can <u>multiply</u> a number by to quickly calculate a <u>percentage</u>, or percentage increase and decrease.</td> </tr> <tr> <td style="padding: 5px;"><b>Reverse percentage</b></td> <td style="padding: 5px;">Working backwards <u>after a percentage change</u> to find the <u>original value</u>.</td> </tr> </table>	<b>Multiplier</b>	The <u>decimal</u> value you can <u>multiply</u> a number by to quickly calculate a <u>percentage</u> , or percentage increase and decrease.	<b>Reverse percentage</b>	Working backwards <u>after a percentage change</u> to find the <u>original value</u> .
<b>Multiplier</b>	The <u>decimal</u> value you can <u>multiply</u> a number by to quickly calculate a <u>percentage</u> , or percentage increase and decrease.				
<b>Reverse percentage</b>	Working backwards <u>after a percentage change</u> to find the <u>original value</u> .				

Writing one number as a percentage of another

Divide the first number by the second to turn into a decimal then multiply by 100 to change into a percentage.

e.g. Simon scores 30 out of 75 in a test. What percentage is this?

$$\frac{30}{75} \times 100 = 40\%$$

Comparing values using percentages

e.g. Mark took 2 exams. In Maths he scored 45 out of 80 and in English he scored 20 out of 38. In which exam did he do best?

Maths:  $\frac{45}{80} \times 100 = 56.25\%$

English:  $\frac{20}{38} \times 100 = 52.6\%$

He scored higher in the Maths exam.

Multipliers

To quickly find a percentage of something, change the percentage into a decimal by dividing by 100. This is the multiplier. Then multiply your value by this decimal.

e.g. Find 18% of 320.

Multiplier:  $18 \div 100 = 0.18$

$0.18 \times 320 = 57.6$  ← This is 18% of 320

e.g. Decrease 1820 by 75%

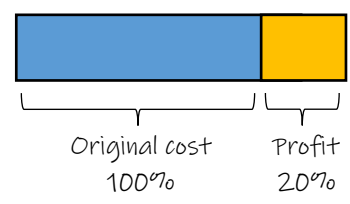
Multiplier:  $25 \div 100 = 0.25$

$0.25 \times 1820 = 455$  ← If you decrease 100% by 75% there is 25% left

Reverse percentages

First work out what percentage is given in the question. Then scale to 1% and back to 100% to find the original amount.

e.g. A car is sold for £4500. This is a 20% profit. How much was the car bought for originally?



In total we have 120%.

$$\begin{aligned} 120\% &= £4500 \\ \div 120 & & \div 120 \\ 1\% &= £37.50 \\ \times 100 & & \times 100 \\ 100\% &= £3750 \end{aligned}$$

e.g. A pair of jeans is bought in a 30% off sale and cost £39.20. How much did they cost originally?



The sale price must represent 70% of the original price.

$$\begin{aligned} 70\% &= £39.20 \\ \div 70 & & \div 70 \\ 1\% &= £0.56 \\ \times 100 & & \times 100 \\ 100\% &= £56 \end{aligned}$$