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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Congruence and Similarity**  |
| 1. Congruent Shapes | Shapes are congruent if they are **identical** - **same shape** and **same size**.Shapes can be rotated or reflected but still be congruent. |  |
| 2. Congruent Triangles | 4 ways of proving that two triangles are congruent:1. **SSS** (Side, Side, Side)2. **RHS** (Right angle, Hypotenuse, Side)3. **SAS** (Side, Angle, Side)4. **ASA** (Angle, Side, Angle) or **AAS**ASS does not prove congruency. |  |
| 3. Similar Shapes | Shapes are similar if they are the **same shape but different sizes**.The proportion of the matching sides must be the same, meaning the ratios of corresponding sides are all equal. |  |
| 4. Scale Factor | The **ratio of corresponding sides** of two similar shapes.To find a scale factor, **divide a length** on one shape **by the corresponding length** on a similar shape. | Image result for math definition scale factorScale Factor = $15÷10=1.5$ |
| 5. Finding missing lengths in similar shapes | 1. Find the **scale factor**. 2. **Multiply or divide** the corresponding side to find a missing length.If you are finding a missing length on the larger shape you will need to multiply by the scale factor.If you are finding a missing length on the smaller shape you will need to divide by the scale factor. | Scale Factor = $3÷2=1.5$$x=4.5×1.5=6.75cm$  |
| 6. Similar Triangles | To show that two triangles are similar, show that:1. The three sides are in the same proportion2. Two sides are in the same proportion, and their included angle is the same3. The three angles are equal | image: two triangles: left triangle: top Y corner: 85 degrees, right Z corner: 40 degrees, left corner: X. Right triangle: same labels: Y: 85 degrees, X: 55 degrees.image: two triangles: left triangle: top Y corner: 85 degrees, right Z corner: 40 degrees, left corner: X. Right triangle: same labels: Y: 85 degrees, X: 55 degrees. |
| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Right Angled Trigonometry**  |
| 1. Trigonometry | The **study** of **triangles**. |  |
| 2. Hypotenuse | The **longest side** of a **right-angled triangle**.Is always **opposite** the **right angle**. | Image result for hypotenuse |
| 3. Adjacent | **Next to** | Image result for hypotenuse |
| 4. Trigonometric Formulae | Use **SOHCAHTOA**.$$\sin(θ)=\frac{O}{H}$$$$\cos(θ)=\frac{A}{H}$$$$\tan(θ)=\frac{O}{A}$$Image result for trigonometry triangles soh cah toaWhen finding a missing angle, use the ‘inverse’ trigonometric function by pressing the ‘shift’ button on the calculator. | Use ‘Opposite’ and ‘Adjacent’, so use ‘tan’$$\tan(35=)\frac{x}{11}$$$$x=11\tan(35)=7.70cm$$Use ‘Adjacent’ and ‘Hypotenuse’, so use ‘cos’$$\cos(x)=\frac{5}{7}$$$$x=cos^{-1}\left(\frac{5}{7}\right)=44.4°$$ |
| 5. 3D Trigonometry | Find missing lengths by **identifying right angled triangles**.You will often have to find a missing length you are not asked for before finding the missing length you are asked for. | Image result for 3d trigonometry |

**Knowledge Organiser**