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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Angles**  |
| 1. Types of Angles | **Acute** **angles** are less than 90°.**Right angles** are exactly 90°.**Obtuse** **angles** are greater than 90° but less than 180°.**Reflex** **angles** are greater than 180° but less than 360°. |  |
| 2. Angle Notation | Can use **one lower-case** letters, eg. $θ$ or $x$Can use **three upper-case** letters, eg. $BAC$ | Image result for angle notation |
| 3. Angles at a Point  | **Angles around a point add up to 360°**. |  |
| 4. Angles on a Straight Line | **Angles around a point on a straight line add up to 180°**. |  |
| 5. Opposite Angles | **Vertically opposite angles are equal**.  |  |
| 6. Alternate Angles | **Alternate angles are equal**.They look like Z angles, but never say this in the exam. |  |
| 7. Corresponding Angles | **Corresponding angles are equal**.They look like F angles, but never say this in the exam. |  |
| 8. Co-Interior Angles | **Co-Interior angles add up to 180°**. They look like C angles, but never say this in the exam.  |  |
| 9. Angles in a Triangle | **Angles in a triangle add up to 180°.** | Image result for angles in a triangle |
| 10. Types of Triangles | **Right Angle** Triangles have a **90°** angle in.**Isosceles** Triangles have **2 equal sides** and **2 equal base angles**.**Equilateral** Triangles have **3 equal sides** and **3 equal angles (60°)**.**Scalene** Triangles have **different sides** and **different angles**.**Base angles in an isosceles triangle are equal.** |  |
| 11. Angles in a Quadrilateral | **Angles in a quadrilateral add up to 360°.** | Image result for angles in a quadrilateral |
| 12. Polygon | A **2D** shape with **only** **straight edges**. | Rectangle, Hexagon, Decagon, Kite etc. |
| 13. Regular | A shape is regular if all the **sides** and all the **angles** are **equal**. | http://withfriendship.com/images/i/40100/Regular-polygon-picture.png  |
| 14. Names of Polygons | **3**-sided = **Triangle****4**-sided = **Quadrilateral****5**-sided = **Pentagon****6**-sided = **Hexagon****7**-sided = **Heptagon**/Septagon**8**-sided = **Octagon****9**-sided = **Nonagon****10**-sided = **Decagon** | Image result for irregular polygons |
| 15. Sum of Interior Angles | $$(n-2)×180$$where n is the number of sides. | Sum of Interior Angles in a Decagon = $\left(10-2\right)×180=1440°$ |
| 16. Size of Interior Angle in a Regular Polygon | $$\frac{(n-2)×180}{n}$$You can also use the formula: $$180-Size of Exterior Angle$$ | Size of Interior Angle in a Regular Pentagon = $$\frac{(5-2)×180}{5}=108°$$ |
| 17. Size of Exterior Angle in a Regular Polygon | $$\frac{360}{n}$$You can also use the formula: $$180-Size of Interior Angle$$ | Size of Exterior Angle in a Regular Octagon = $$\frac{360}{8}=45°$$ |

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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Pythagoras’ Theorem**  |
| 1. Pythagoras’ Theorem | For any **right angled triangle**:$$a^{2}+b^{2}=c^{2}$$Used to find **missing lengths**.a and b are the shorter sides, c is the **hypotenuse** (**longest side**). |  |
| 2. 3D Pythagoras’ Theorem | 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. | Can a pencil that is 20cm long fit in a pencil tin with dimensions 12cm, 13cm and 9cm? The pencil tin is in the shape of a cuboid.Hypotenuse of the base = $\sqrt{12^{2}+13^{2}}=17.7$Diagonal of cuboid = $\sqrt{17.7^{2}+9^{2}}=19.8cm$No, the pencil cannot fit. |

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| **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**