| SOLVING TRIANGLES | | | |
|---|---|---|---|
| METHOD | FORMULAS | TRIANGLE | WHAT YOU NEED |
| Pythagorean Theorem | $c^2 = a^2 + b^2$ | right triangle | - the length of 2 sides |
| Sum of the Angles<br>(to find a 3rd angle) | a + b + c = 180° | any triangle | - 2 angles |
| SOH CAH TOA | $\sin x = \frac{opp}{hyp}$<br>$\cos x = \frac{adj}{hyp}$<br>$\tan x = \frac{opp}{adj}$ | right triangles | - 1 side & 1 angle<br>- 2 sides |
| Sine Law | $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$<br>**OR**<br>$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ | any triangle | - 2 sides & an angle not between them<br>or<br>-2 angles & 1 side |
| Cosine Law | **Finding a side:**<br>$a^2 = b^2 + c^2 - 2bc\cos A$<br>$b^2 = a^2 + c^2 - 2ac\cos B$<br>$c^2 = a^2 + b^2 - 2ab\cos C$<br>**Finding an angle:**<br>$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$<br>$\cos B = \frac{a^2 + c^2 - b^2}{2ac}$<br>$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$ | any triangle | - 2 sides and the angle between them<br>or<br>-3 sides (find an angle) |