

Trig Identities

1. $\tan x \equiv \frac{\sin x}{\cos x}$

2. $\sin^2 x + \cos^2 x \equiv 1$

3. $\sec x \equiv \frac{1}{\cos x}$

4. $\operatorname{cosec} x \equiv \frac{1}{\sin x}$

5. $\cot x \equiv \frac{1}{\tan x} \equiv \frac{\cos x}{\sin x}$

Must be learned

6. $\tan^2 x + 1 \equiv \sec^2 x$

7. $1 + \cot^2 x \equiv \operatorname{cosec}^2 x$

Come from dividing through (2) by either \sin^2 or \cos^2 .

Trig Identities for AQA Core 4

1. $\sin(A \pm B) \equiv \sin A \cos B \pm \cos A \sin B$

2. $\cos(A \pm B) \equiv \cos A \cos B \mp \sin A \sin B$

3. $\tan(A \pm B) \equiv \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$

On Formula Sheet

4. $\sin 2A \equiv 2 \sin A \cos A$

5. $\cos 2A \equiv \cos^2 A - \sin^2 A$

6. $\tan 2A \equiv \frac{2 \tan A}{1 - \tan^2 A}$

Come from putting $A=B$ into (1), (2) and (3)

7. $1 + \cos 2A \equiv 2 \cos^2 A$

8. $1 - \cos 2A \equiv 2 \sin^2 A$

Come from (4) and (5) replacing either:

$$\sin^2 = 1 - \cos^2 \text{ (7) or } \cos^2 = 1 - \sin^2 \text{ (8)}$$

9. $\sin 3A \equiv 3 \sin A - 4 \sin^3 A$

10. $\cos 3A \equiv 4 \cos^3 A - 3 \cos A$

11. $\tan 3A \equiv \frac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}$

Come from putting $B=2A$ into (1), (2) and (3)