

## FORMULAE:

### Recall:

$$1. \csc x = \frac{1}{\sin x}$$

$$2. \sec x = \frac{1}{\cos x}$$

$$3. \cot x = \frac{1}{\tan x} = \frac{\cos x}{\sin x}$$

$$4. \sin^2 x + \cos^2 x = 1 \quad \text{OR} \quad \sin^2 x = 1 - \cos^2 x \quad \text{OR} \quad \cos^2 x = 1 - \sin^2 x$$

$$5. 1 + \cot^2 x = \csc^2 x \quad \text{OR} \quad \csc^2 x - \cot^2 x = 1 \quad \text{OR} \quad \csc^2 x - 1 = \cot^2 x$$

$$6. \tan^2 x + 1 = \sec^2 x \quad \text{OR} \quad \sec^2 x - \tan^2 x = 1 \quad \text{OR} \quad \sec^2 x - 1 = \tan^2 x$$

$$7. \sin 2x = 2 \sin x \cos x$$

$$8. \cos 2x = 2 \cos^2 x - 1 \quad \text{so that} \quad \cos^2 x = \frac{1 + \cos 2x}{2}$$

$$9. \cos 2x = 1 - 2 \sin^2 x \quad \text{so that} \quad \sin^2 x = \frac{1 - \cos 2x}{2}$$

$$10. \cos 2x = \cos^2 x - \sin^2 x$$

### Defactorization Formulae:

$$1. \sin A \cos B = \frac{1}{2} [\sin(A - B) + \sin(A + B)]$$

$$2. \sin A \sin B = \frac{1}{2} [\cos(A - B) - \cos(A + B)]$$

$$3. \cos A \cos B = \frac{1}{2} [\cos(A - B) + \cos(A + B)]$$