# Trigonometry Function and indetities

**1**

Reciprocal Trig Functions and identities (derived from $sin^2x + cos^2x = 1$)

$$sec\, x = \frac{1}{\cos x} \qquad cosec\, x = \frac{1}{\sin x} \qquad cot\, x = \frac{1}{\tan x} \left(\frac{\cos x}{\sin x}\right)$$

$$1 + tan^2x = sec^2x \qquad 1 + cot^2x = cosec^2x$$

**2**

Double angle and addition formulae

The addition formulae are given the formula booklet

Make sure you can use these to derive :

**DOUBLE ANGLE FORMULAE**

sin 2A = 2 sinAcosA

cos 2A = cos²A – sin²A

= 2cos²A – 1

= 1 - 2sin²A

Tan 2A = $\frac{2\tan A}{1-tan^2 A}$

$$sin(A \pm B) = sinA\, cosB \pm cosAsinB$$

$$cos(A \pm B) = cosA\, cosB \mp sinAsinB$$

$$tan(A \pm B) = \frac{tanA \pm tanB}{1 \mp tanAtanB}$$

- Useful to solve equations
- cos 2A often used to integrate trig functions involving sin²x or cos²x

**3**

**EXPRESSING IN THE FORM** $rsin(\theta \pm \alpha)$ **and** $rcos(\theta \pm \alpha)$

- Useful in solving equations   asin θ + bcos θ = 0
- Useful in finding minimum/maximum values of $acos\theta \pm bsin\theta$   and   $asin\theta \pm bcos\theta$

# How do we use Knowledge Organisers in Mathematics?

## How can you use knowledge organisers at home to help us?

- **Retrieval Practice**: Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards**: Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps**: Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it**: Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it**: Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

## How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

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