



Air maths tuition

Interact, engage and perform

Trig Equations - Double Angle Types (1)

Solve $\sin 2x = \sin x$ for $0^\circ \leq x \leq 360^\circ$

$\therefore 2\sin x \cos x = \sin x$

$\therefore 2\sin x \cos x - \sin x = 0$

$\therefore \sin x (2\cos x - 1) = 0$

$\therefore \sin x = 0$ or $2\cos x - 1 = 0$

When $\sin x = 0$

$\therefore x = \sin^{-1} 0$

$\therefore x = 0^\circ, 180^\circ, 360^\circ$


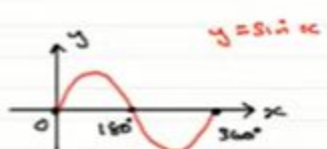
When $2\cos x - 1 = 0$

$\therefore \cos x = \frac{1}{2}$

$\therefore x = \cos^{-1} \frac{1}{2}$

$x = 60^\circ, 300^\circ$

$\therefore x = 0^\circ, 60^\circ, 180^\circ, 300^\circ, 360^\circ$



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