



Air maths tuition

Interact, engage and perform

Trig. Equation | Past Paper Question | C2 Edexcel June 2012 Q6(b)

(b) Hence solve, for $0 \leq x \leq 180^\circ$, $\tan 2x = 5 \sin 2x \Rightarrow (1 - 5 \cos 2x) \sin 2x = 0$
giving your answers to 1 decimal place where appropriate.
You must show clearly how you obtained your answers. (5)

$$(1 - 5 \cos 2x) = 0 \text{ or } \sin 2x = 0$$

when $1 - 5 \cos 2x = 0$

$$\therefore 5 \cos 2x = 1 \quad 78.463^\circ \dots$$

$$\therefore \cos 2x = \frac{1}{5}$$

$$\therefore 2x = \cos^{-1}\left(\frac{1}{5}\right)$$

$$\therefore 2x = 78.463^\circ \dots, 281.536^\circ \dots$$

$$\therefore x = 39.231^\circ \dots, 140.768^\circ \dots$$

$$\therefore x = 39.2^\circ (1 \text{ dp}), 140.8^\circ (1 \text{ dp})$$



when $\sin 2x = 0$

$$\therefore 2x = 0^\circ, 180^\circ, 360^\circ$$

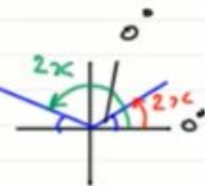
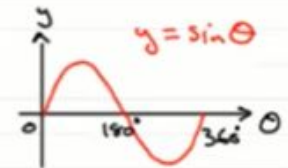
$$\therefore x = 0^\circ, 90^\circ, 180^\circ$$

$$\sin 2x = 0$$

$$\therefore 2x = \sin^{-1} 0$$

$$\therefore 2x = 0^\circ, 180^\circ, 360^\circ$$

$$\therefore x = 0^\circ, 90^\circ, 180^\circ$$



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