

## Solving Harder Trigonometric Equations in Radians

You deal with these in the way as you did for degrees but you must make sure you have your calculator on the right mode.

*Example 1:* Find the solution to  $4 \sin(x - 2) = 2$  for  $0 \leq x \leq 2\pi$

$$4 \sin(x - 2) = 2$$

$$\sin(x - 2) = \frac{1}{2}$$

$$x - 2 = 0.5236$$

$$\theta = 0.5236$$

sin is positive in quadrants 1 and 2

$$\text{Q1} \quad x - 2 = 0.5236$$

$$x = 2.534 \text{ rads}$$

$$\text{Q4} \quad x - 2 = 2\pi - 0.5236$$

$$x - 2 = 5.7596$$

$$x = 7.7596 \text{ rads}$$

Here we can see that the second answer is outside our range so we need to find the next solution by subtracting  $2\pi$

$$7.7596 - 2\pi = 1.4764$$

$\therefore$  The solutions are 1.4764 rads & 2.534 rads