<u>Solving Trigonometric Equations</u>

Solving trigonometric equations is virtually the same as you did in Year 1, except:

(a) Your calculator needs to be in radians mode.
(b) We use π − instead of $180°$ −, and so on.

Remember

- $\sin(x) = \sin(\pi - x)$
- $\cos(x) = \cos(2\pi - x)$
- sin, cos repeat every 2π but tan every π

Example
Solve the equation
$$\sin 3\theta = \frac{\sqrt{3}}{2} \text{ in the interval } 0 \le \theta \le 2\pi.$$

Test Your Understanding

[Jan 07 Q6]

Find all the solutions, in the interval $0 \leq x < 2\pi$, of the equation
$2\cos^2 x + 1 = 5\sin x$, giving each solution in terms of π. **(6)**

Extension

[MAT 2010 1C] In the range $0 \leq x \leq 2\pi$, the equation $\sin^2 x + 3\sin x \cos x + 2\cos^2 x = 0$ has how many solutions?

Ex 5E Pg 131