Solving Trigonometric Equations

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

1. Your calculator needs to be in radians mode.
2. We use $π-$ instead of $180°-$, and so on.

Remember

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

Example

Solve the equation
$\sin(3θ)=\frac{\sqrt{3}}{2}$ in the interval $0\leq θ\leq 2π$.

Test Your Understanding

**[Jan 07 Q6]**

Find all the solutions, in the interval 0 ≤ *x* < 2*π*, of the equation

2 cos2 *x* + 1 = 5 sin *x*, giving each solution in terms of *π*. **(6)**

Extension

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

Ex 5E Pg 131