

## 10.6) Equations and identities

## Worked example

Solve in the interval  $0 \leq x < 360^\circ$ :

$$3 \sin^2 x - 5 \sin x + 2 = 0$$

## Your turn

Solve in the interval  $0 \leq x < 360^\circ$ :

$$5 \sin^2 x + 3 \sin x - 2 = 0$$

$$x = 23.6^\circ, 156.4^\circ, 270.0^\circ \text{ (1 dp)}$$

## Worked example

Solve in the interval  $0 \leq x < 360^\circ$ :

$$5 \cos^2 x + 3 \cos x - 2 = 0$$

## Your turn

Solve in the interval  $0 \leq x < 360^\circ$ :

$$3 \cos^2 x - 5 \cos x + 2 = 0$$

$$x = 0.0^\circ, 48.2^\circ, 180.0^\circ, 311.8^\circ \text{ (1 dp)}$$

## Worked example

Solve in the interval  $0 \leq x < 360^\circ$ :

$$3 \sin^2 x - 7 \sin x + 4 = 0$$

## Your turn

Solve in the interval  $0 \leq x < 360^\circ$ :

$$2 \cos^2 x - \cos x - 3 = 0$$

$$x = 180^\circ$$

## Worked example

Solve in the interval  $0 \leq x < 360^\circ$ :

$$\sin^2 x = 2 \sin x$$

## Your turn

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$\cos^2 x = 4 \cos x$$

$$x = 0^\circ$$

## Worked example

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$\cos^2 x - \cos x = 0$$

## Your turn

Solve in the interval  $0 \leq x < 360^\circ$ :

$$\sin^2 x + 3 \sin x = 0$$

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

## Worked example

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$\cos^2(x - 60^\circ) = \frac{\sqrt{3}}{2}$$

## Your turn

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$\sin^2(x - 30^\circ) = \frac{1}{2}$$

$$x = 75^\circ, 165^\circ, 255^\circ, 345^\circ$$

## Worked example

Solve in the interval  $0 \leq \theta \leq 360^\circ$ :

$$\tan^2 \theta = 25$$

## Your turn

Solve in the interval  $0 \leq \theta \leq 360^\circ$ :

$$\tan^2 \theta = 16$$

$$\theta = 76.0^\circ, 104.0^\circ, 256.0^\circ, 284.0^\circ \text{ (1 dp)}$$



## Worked example

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$5 \cos^2 x - 4 \sin x + 3 = 0$$

## Your turn

Solve in the interval  $0 \leq x \leq 360^\circ$ :

$$6 \sin^2 x + 7 \cos x - 2 = 0$$

$$x = 114.8^\circ, 245.2^\circ \text{ (1 dp)}$$

## Worked example

Solve in the interval  $-180^\circ \leq x \leq 180^\circ$ :

$$2 \sin^2 x - 9 \cos x = 3 \cos^2 x$$

## Your turn

Solve in the interval  $-180^\circ \leq x \leq 180^\circ$ :

$$2 \cos^2 x + 9 \sin x = 3 \sin^2 x$$

$$x = -168.5^\circ, -11.5^\circ \text{ (1 dp)}$$