Solutions

Each answer shows the steps, then the **result**.

2.1

- $\dfrac{\sqrt{3}}{2}$

2.2

- $\tan\theta$

3.1 C

- The sine curve gives two solutions in one full turn for $0 < 0.4 < 1$

3.2

- use $\cos^2\theta = 1 - \sin^2\theta$: $3(1 - \sin^2\theta) + 2\sin\theta - 3 = 0 \Rightarrow -3\sin^2\theta + 2\sin\theta = 0$; $\sin\theta(3\sin\theta - 2) \cdot (-1) = 0 \Rightarrow \sin\theta = 0$ or $\sin\theta = \frac{2}{3}$; $\sin\theta = 0 \Rightarrow \theta = 0°, 180°, 360°$; $\sin\theta = \frac{2}{3} \Rightarrow \theta = 41.8°, 138.2°$

3.3

- $\sin 2x = \frac{1}{2}$; for $0° \leqslant 2x \leqslant 360°$, $2x = 30°, 150°$; $x = 15°, 75°$