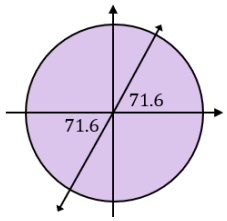
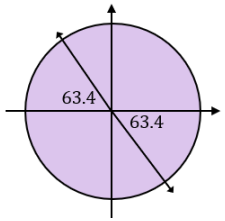
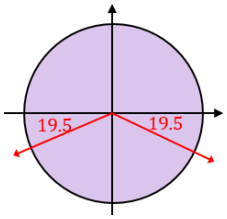
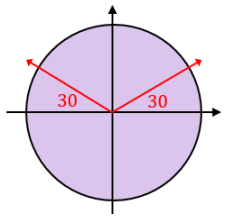
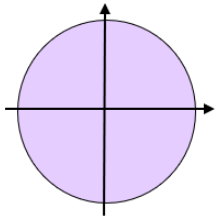
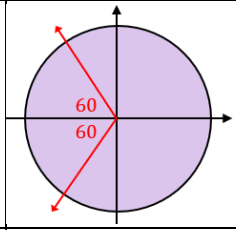
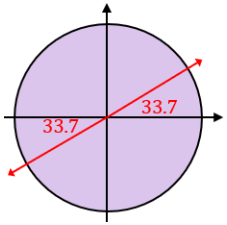
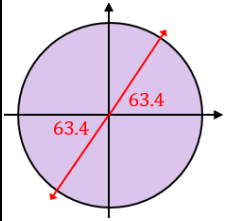
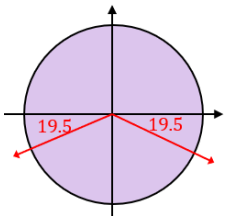
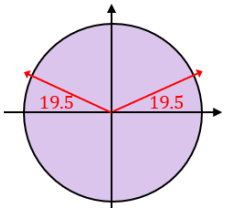
Fill in the Blanks — Solving Quadratic Trigonometric Equations

Question	Factorise and Solve	Solve 1st Trig Equation	Solve 2nd Trig Equation
Solve $\tan^2\theta - \tan\theta - 6 = 0$ for $0° \le \theta < 360°$	$(\tan\theta - 3)(\tan\theta + 2) = 0$ $\tan\theta = 3$ or $\tan\theta = -2$	 $\theta = \tan^{-1}(3)$ $\theta = 71.6°$ $\boldsymbol{\theta = 71.6°, 251.6°}$	 $\theta = \tan^{-1}(2)$ $\theta = 63.4°$ $\boldsymbol{\theta = 116.6°, 296.6°}$
Solve $6\sin^2\theta - \sin\theta - 1 = 0$ for $-180° \le \theta < 180°$	$(3\sin\theta + 1)(2\sin\theta - 1) = 0$ $\sin\theta = -\frac{1}{3}$ or $\sin\theta = \frac{1}{2}$	 $\theta = \sin^{-1}\left(\frac{1}{3}\right)$ $\theta = 19.5°$ $\boldsymbol{\theta = -19.5°, -160.5°}$	 $\theta = \sin^{-1}\left(\frac{1}{2}\right)$ $\theta = 30°$ $\boldsymbol{\theta = 30°, 150°}$
Solve $2\cos^2\theta + 7\cos\theta + 3 = 0$ for $0° \le \theta < 360°$	$(\cos\theta + 3)(2\cos\theta + 1) = 0$ $\cos\theta = -3$ or $\cos\theta = -\frac{1}{2}$	 No Solutions	 $\theta = \cos^{-1}\left(\frac{1}{2}\right)$ $\theta = 60°$ $\boldsymbol{\theta = 120°, 240°}$
Solve $3\tan^2\theta - 8\tan\theta + 4 = 0$ for $-180° \le \theta < 180°$	$(3\tan\theta - 2)(\tan\theta - 2) = 0$ $\tan\theta = \frac{2}{3}$ or $\tan\theta = 2$	 $\theta = \tan^{-1}\left(\frac{2}{3}\right)$ $\theta = 33.7°$ $\boldsymbol{\theta = 33.7°, -146.3°}$	 $\theta = \tan^{-1}(2)$ $\theta = 63.4°$ $\boldsymbol{\theta = 63.4°, -116.6°}$
Solve $9\sin^2\theta - 1 = 0$ for $0° \le \theta < 360°$	$(3\sin\theta + 1)(3\sin\theta - 1) = 0$ $\sin\theta = -\frac{1}{3}$ or $\sin\theta = \frac{1}{3}$	 $\theta = \sin^{-1}\left(\frac{1}{3}\right)$ $\theta = 19.5°$ $\boldsymbol{\theta = 199.5°, 340.5°}$	 $\theta = \sin^{-1}\left(\frac{1}{3}\right)$ $\theta = 19.5°$ $\boldsymbol{\theta = 19.5°, 160.5°}$