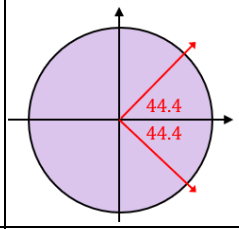
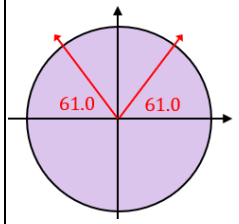
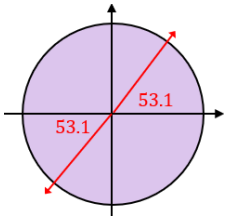
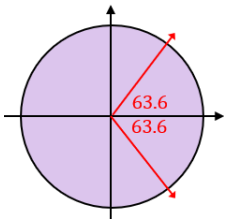
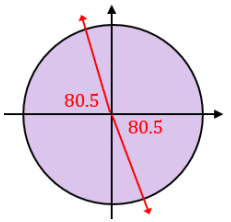
Fill in the Blanks — Solving Trigonometric Equations with Multiple Angles

Question	Substitute $x = \cdots$	Rearrange Equation	Acute Angle	Range for x	Unit Circle	Solutions for x	Solutions for θ
Solve $7\cos(2\theta) = 5$ for $0° \le \theta < 180°$	$x = 2\theta$ $7\cos x = 5$	$\cos x = \frac{5}{7}$	$x = \cos^{-1}\left(\frac{5}{7}\right)$ $x = 44.415°$	$0° \le x < 360°$		$x = 44.415°$ $x = 315.585°$	$\theta = 22.2°$ $\theta = 157.8°$
Solve $8\sin(3\theta) - 7 = 0$ for $-90° \le \theta < 90°$	$x = 3\theta$ $8\sin x - 7 = 0$	$\sin x = \frac{7}{8}$	$x = 61.045°$	$-270° \le x < 270°$		$x = 61.045°$ $x = 118.955°$ $x = -241.045°$	$\theta = 20.3°$ $\theta = 39.7°$ $\theta = -80.3°$
Solve $\frac{4}{\tan(\theta + 25)} = 3$ for $-180° \le \theta < 180°$	$x = \theta + 25$ $\frac{4}{\tan x} = 3$	$\tan x = \frac{4}{3}$	$x = 53.130°$	$-155° \le x < 205°$		$x = 53.130°$ $x = -128.870°$	$\theta = 28.1°$ $\theta = -153.9°$
$9\cos(2\theta - 15) = 4$ for $0° \le \theta < 360°$	$x = 2\theta - 15$ $9\cos x = 4$	$\cos x = \frac{4}{9}$	$x = 63.612°$	$-15° \le x < 705°$		$x = 63.612°$ $x = 296.388°$ $x = 423.612°$ $x = 656.388°$	$\theta = 39.3°$ $\theta = 155.7°$ $\theta = 219.3°$ $\theta = 335.7°$
$\frac{\tan(3\theta + 70)}{2} + 3 = 0$ for $-90° \le \theta < 90°$	$x = 3\theta + 70$ $\frac{\tan x}{2} + 3 = 0$	$\tan x = -6$	$x = 80.538°$	$-200° \le x < 340°$		$x = -80.538°$ $x = 99.462°$ $x = 279.462°$	$\theta = -50.2°$ $\theta = 9.8°$ $\theta = 69.8°$