

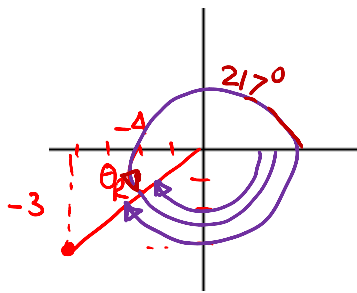
- d 8. Which point on the unit circle corresponds to $\tan \theta = \sqrt{3}$?
- A. $(-\frac{1}{2}, \sqrt{3})$ C. $(\sqrt{3}, -\frac{\sqrt{3}}{2})$
- B. $(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$ **D.** $(-\frac{1}{2}, -\frac{\sqrt{3}}{2})$

9. Find the length of the arc that subtends a sector angle 225° in a circle with radius 3.7 cm.

$\theta = 225^\circ$
 $r = 3.7 \text{ cm}$

$$a = \theta \cdot r = \left(225^\circ \times \frac{\pi}{180}\right) \cdot 3.7 = \boxed{14.53 \text{ cm}}$$

10. $P(-4, -3)$ is a terminal point of angle θ in standard position. Determine all possible measures of θ in the domain $-780^\circ \leq \theta \leq -60^\circ$. Give the answers to the nearest degree.



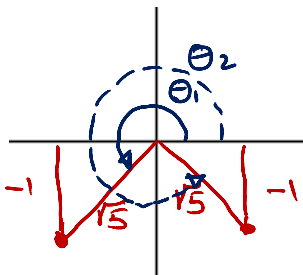
$$\theta_R = \tan^{-1} \frac{3}{4} \approx 37^\circ \quad -780 \leq \theta \leq -60$$

$$\therefore \angle \theta = 180 + 37 = 217^\circ$$

between -60 & -780

$$\therefore \left. \begin{aligned} \theta_1 &= 217 - 360^\circ = -143^\circ \\ \theta_2 &= -143 - 360^\circ = -503^\circ \end{aligned} \right\} \text{ 2 angles}$$

11. If θ is on a terminal arm, find the measure(s) of angle θ if $\sin \theta = -\frac{1}{\sqrt{5}}$.



$$\text{Find } \theta_R \therefore \theta_R = \sin^{-1} \left(\frac{1}{\sqrt{5}} \right) = 26.56^\circ \approx 27^\circ$$

$$\therefore \left. \begin{aligned} \theta_1 &= 180 + 27 = 207^\circ \\ \theta_2 &= 360 - 27 = 333^\circ \end{aligned} \right\} \text{ 2 angles}$$

Bonus: A unicycle wheel has diameter 20 in. Suppose a positive angle of rotation corresponds to the wheel moving forward. Determine the distance and the direction the wheel will roll when it turns through an angle of -350° . Express the exact distance, in inches, in terms of π .

$$d = 20$$

$$r = \frac{20}{2} = 10 \text{ in}$$

$$a = \theta \cdot r = \left(350^\circ \times \frac{\pi}{180}\right) \cdot 10 = \frac{19.44 \pi}{1} = \boxed{61.08 \text{ in}}$$

backward \Downarrow