

1. Mike mentions to Jeff that he always gets confused which ratio he should use when converting from degrees to radians, is it $\frac{\pi}{180^\circ}$ or $\frac{180^\circ}{\pi}$? Which one is the correct ratio? Explain a way to make sense of which one to use.

2. Convert the degree measures into radians. Leave answers as exact values in most reduced form.

- a) 90° b) 30° c) 300° d) 270°
- $\frac{\pi}{2}$ radians $30 \cdot \frac{\pi}{180}$ $300 \cdot \frac{\pi}{180}$ $3\pi/2$ radians
- $\frac{\pi}{6}$ radians $5\pi/3$ radians

3. Convert the following radian measures into degrees. Give the quadrant the angle is located in.

- a) $\frac{5\pi}{3}$ b) $\frac{9\pi}{20}$ c) $\frac{4\pi}{15}$ d) $\frac{7\pi}{6}$
- 300° 81° -48° 210°
- Q4 Q1 Q4 Q3
- e) $\frac{6\pi}{5}$ f) $\frac{11\pi}{12}$ g) $\frac{3\pi}{10}$ h) $\frac{4\pi}{2}$
- 216° -165° 54° 360°
- Q3 Q3 Q1

4. You are told that 15° is $\frac{\pi}{12}$ radians. How could you use that to determine what the radian value is for 45° ?

mult by 3 since $45^\circ = 3(15^\circ)$
 $\rightarrow 3(\frac{\pi}{12}) = \pi/4$ rad

5. Convert the degree measures into radians. Leave answers as exact values in most reduced form. Give the quadrant.

- a) 315° b) -135° c) -36° d) 333°
- $\frac{7\pi}{4}$ radians $-\frac{3\pi}{4}$ radians $-\frac{\pi}{5}$ radians $333 \cdot \frac{\pi}{180}$
- Q4 Q3 Q4 Q4
- 36 36
- $\frac{37\pi}{20}$ radians Q4

1st 2 columns UNIT 6 WORKSHEET 2 FINDING COTERMINAL ANGLES KEY

Find one positive and one negative coterminal angle of each of the following. There is no need to graph the angles. If in degrees, give answers in degrees. If radians, give radians.

- A) 30° B) -40° C) 150° D) 220°
- 390° $-40^\circ + 360^\circ = 320^\circ$ 510° -210°
- -330° $-40^\circ - 360^\circ = -400^\circ$ 580° -140°
- E) -330° F) $\frac{\pi}{3}$ G) $\frac{5\pi}{2}$ H) $-\frac{2\pi}{3}$
- 30° $\frac{\pi}{3} + 2\pi = \frac{7\pi}{3}$ $\frac{5\pi}{2} + 2\pi = \frac{9\pi}{2}$ $-\frac{2\pi}{3}$
- -690° $\frac{\pi}{3} - 2\pi = -\frac{5\pi}{3}$
- I) $-\frac{5\pi}{6}$ J) $\frac{5\pi}{3}$ K) $-\frac{4\pi}{3}$ L) 300°
- $-\frac{5\pi}{6} + 2\pi = \frac{7\pi}{6}$ $\frac{5\pi}{3} + 2\pi = \frac{11\pi}{3}$ $-\frac{4\pi}{3}$ 300°
- $-\frac{5\pi}{6} - 2\pi = -\frac{17\pi}{6}$ $\frac{5\pi}{3} - 2\pi = -\frac{\pi}{3}$
- M) 700° N) $-\frac{17\pi}{6}$ O) $\frac{7\pi}{3}$ P) -410°
- $700 + 360 = 1060^\circ$ $-\frac{5\pi}{6}$ $\frac{7\pi}{3}$ -410°
- OR $700 - 360 = 340^\circ$ $\frac{7\pi}{6}$
- $340 - 360 = -20^\circ$ $\frac{7\pi}{6}$
- Q) 1000° R) 31π S) $-\frac{15\pi}{4}$ T) $\frac{5\pi}{6}$
- 640° 19π $-\frac{15\pi}{4}$ $\frac{5\pi}{6}$
- OR 280° $\frac{7\pi}{6}$ $-\frac{5\pi}{6}$
- -80° $\frac{7\pi}{6}$ $-\frac{5\pi}{6}$