

Lesson 10 Practice Problems

1. A rotation takes *P* to *Q*. What could be the measure of the angle of rotation in radians? Select **all** that apply.



A. $\frac{3\pi}{2}$ B. $\frac{\pi}{2}$ C. $\frac{\pi}{4}$ D. $\frac{5\pi}{2}$ E. $\frac{5\pi}{4}$

2. a. A $\frac{2\pi}{3}$ radian rotation takes N to P. Label P. b. A $\frac{7\pi}{6}$ radian rotation takes N to Q. Label Q. c. A $\frac{25\pi}{6}$ radian rotation takes N to R. Label R.



3. Here is a wheel with radius 1 foot.



- a. List three different counterclockwise angles the wheel can rotate so that point P ends up at position Q.
- b. How many feet does the wheel roll for each of these angles?
- 4. The point *P* on the unit circle is in the 0 radian position.
 - a. Which counterclockwise rotations take P back to itself? Explain how you know.
 - b. Which counterclockwise rotations take *P* to the opposite point on the unit circle? Explain how you know.



5. Here is the unit circle with a point P at (1, 0). Find the coordinates of P after the circle rotates the given amount counterclockwise around its center.



a. $\frac{1}{3}$ of a full rotation

- b. $\frac{1}{2}$ of a full rotation
- c. $\frac{2}{3}$ of a full rotation

(From Unit 6, Lesson 4.)



(From Unit 6, Lesson 9.)