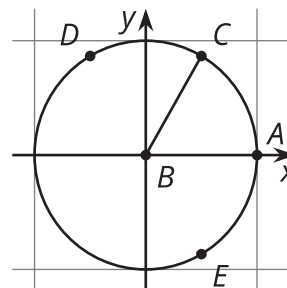


Lesson 4 Practice Problems

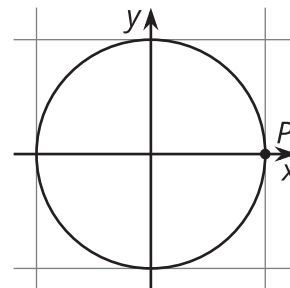
1. Angle ABC measures $\frac{\pi}{3}$ radians, and the coordinates of C are about $(0.5, 0.87)$.



- a. The measure of angle ABD is $\frac{2\pi}{3}$ radians. What are the approximate coordinates of D ? Explain how you know.
- b. The measure of angle ABE is $\frac{5\pi}{3}$ radians. What are the approximate coordinates of E ? Explain how you know.

2. Give an angle of rotation centered at the origin that sends point P to a location whose (x, y) coordinates satisfy the given conditions.

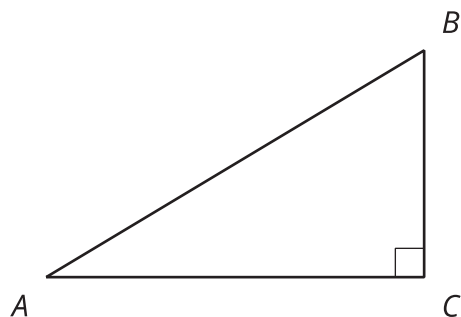
- a. $x > 0$ and $y < 0$
- b. $x < 0$ and $y > 0$
- c. $y < 0$ and $x < 0$



3. Lin calculates $0.97^2 + 0.26^2$ and finds that it is 1.0085.
- Explain why $(0.97, 0.26)$ is not on the unit circle.

 - Is $(0.97, 0.26)$ a good estimate for the coordinates of a point on the unit circle? Explain how you know.
4. The x -coordinate of a point P on the unit circle is 0. If point P is the result of rotating the point $(1, 0)$ by θ radians counterclockwise about the origin, what angle could θ represent? Select **all** that apply.
- 0
 - $\frac{\pi}{2}$
 - π
 - $\frac{3\pi}{2}$
 - 2π

5. Here is triangle ABC . BC is shorter than AC . Which statements are true? Select all that apply.

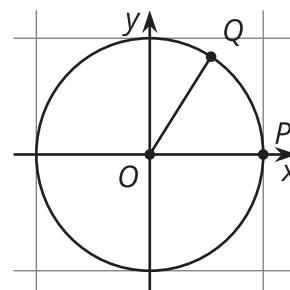


- A. $\sin(A) > 1$
- B. $\tan(A) < 1$
- C. $\cos(A) < 1$
- D. $\sin(A) < \sin(B)$
- E. $\cos(A) < \cos(B)$
- F. $\tan(A) < \tan(B)$

(From Unit 6, Lesson 2.)

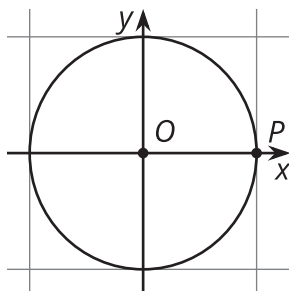
6. Angle POQ measures one radian. The radius of the circle is 1 unit.

- a. What is the length of arc PQ ?
- b. Explain why the length of arc PQ is less than $\frac{1}{6}$ of the full circle.



(From Unit 6, Lesson 3.)

7. Label these points on the unit circle:



- a. Q is the image of P after a $\frac{11\pi}{6}$ rotation with center O .
- b. R is the image of P after a $\frac{3\pi}{2}$ rotation with center O .
- c. U is the image of P after a $\frac{2\pi}{3}$ rotation with center O .
- d. V is the image of P after a $\frac{\pi}{3}$ rotation with center O .

(From Unit 6, Lesson 3.)