### Lesson 4 Practice Problems

1. Angle $ABC$ measures $\frac{π}{3}$ radians, and the coordinates of $C$ are about $\left(0.5,0.87\right)$.
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	1. The measure of angle $ABD$ is $\frac{2π}{3}$ radians. What are the approximate coordinates of $D$? Explain how you know.
	2. The measure of angle $ABE$ is $\frac{5π}{3}$ radians. What are the approximate coordinates of $E$? Explain how you know.
1. Give an angle of rotation centered at the origin that sends point $P$ to a location whose $\left(x,y\right)$ coordinates satisfy the given conditions.
	1. $x>0$ and $y<0$
	2. $x<0$ and $y>0$
	3. $y<0$ and $x<0$
* 
1. Lin calculates $0.97^{2}+0.26^{2}$ and finds that it is 1.0085.
	1. Explain why $\left(0.97,0.26\right)$ is not on the unit circle.
	2. Is $\left(0.97,0.26\right)$ a good estimate for the coordinates of a point on the unit circle? Explain how you know.
2. The $x$-coordinate of a point $P$ on the unit circle is 0. If point $P$ is the result of rotating the point $\left(1,0\right)$ by $θ$ radians counterclockwise about the origin, what angle could $θ$ represent? Select **all** that apply.
	1. 0
	2. $\frac{π}{2}$
	3. $π$
	4. $\frac{3π}{2}$
	5. $2π$
3. Here is triangle $ABC$. $BC$ is shorter than $AC$. Which statements are true? Select **all** that apply.
* 
	1. $sin\left(A\right)>1$
	2. $tan\left(A\right)<1$
	3. $cos\left(A\right)<1$
	4. $sin\left(A\right)<sin\left(B\right)$
	5. $cos\left(A\right)<cos\left(B\right)$
	6. $tan\left(A\right)<tan\left(B\right)$
* (From Unit 6, Lesson 2.)
1. Angle $POQ$ measures one radian. The radius of the circle is 1 unit.
	1. What is the length of arc $PQ$?
	2. Explain why the length of arc $PQ$ is less than $\frac{1}{6}$ of the full circle.
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* (From Unit 6, Lesson 3.)
1. Label these points on the unit circle:
* 
	1. $Q$ is the image of $P$ after a $\frac{11π}{6}$ rotation with center $O$.
	2. $R$ is the image of $P$ after a $\frac{3π}{2}$ rotation with center $O$.
	3. $U$ is the image of $P$ after a $\frac{2π}{3}$ rotation with center $O$.
	4. $V$ is the image of $P$ after a $\frac{π}{3}$ rotation with center $O$.
* (From Unit 6, Lesson 3.)



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