### Lesson 6 Practice Problems

1. The picture shows angles $A$ and $B$. Explain why $sin\left(B\right)=-sin\left(A\right)$ and why $cos\left(B\right)=-cos\left(A\right)$.
* 
1. Which statements are true? Select **all** that apply.
	1. $sin\left(θ\right)>0$ for an angle $θ$ in quadrant 2
	2. $cos\left(θ\right)>0$ for an angle $θ$ in quadrant 2
	3. $tan\left(θ\right)>0$ for an angle $θ$ in quadrant 2
	4. $sin\left(θ\right)>0$ for an angle $θ$ in quadrant 3
	5. $cos\left(θ\right)>0$ for an angle $θ$ in quadrant 3
	6. $tan\left(θ\right)>0$ for an angle $θ$ in quadrant 3
2. The tangent of an angle satisfies $tan\left(θ\right)=10$.
	1. Which quadrant could $θ$ lie in? Explain how you know.
	2. Estimate the possible value(s) of $θ$. Explain your reasoning.
3. Evaluate each of the following:
	1. $tan\left(\frac{5π}{4}\right)$
	2. $sin\left(\frac{3π}{2}\right)$
	3. $cos\left(\frac{7π}{4}\right)$
4. The sine of an angle $θ$ in the second quadrant is $0.6$. What is $tan\left(θ\right)$? Explain how you know.
5. Triangle $ABC$ is an isosceles right triangle in the unit circle.
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	1. Explain why $sin\left(A\right)=cos\left(A\right)$.
	2. Use the Pythagorean Theorem to explain why $2\left(sin\left(A\right)\right)^{2}=1$.
* (From Unit 6, Lesson 5.)
1. Triangle $DEF$ is similar to triangle $ABC$. The scale factor going from $△DEF$ to $△ABC$ is 3.
* 
	1. Explain why the length of segment $AB$ is 3 times the length of segment $DE$ and the length of segment $BC$ is 3 times the length of segment $EF$.
	2. Explain why $sin\left(A\right)=sin\left(D\right)$.
* (From Unit 6, Lesson 2.)
1. Which of the following is true for angle $θ$? Select **all** that apply.
* 
	1. $sin\left(θ\right)<0$
	2. $sin\left(θ\right)>0$
	3. $cos\left(θ\right)<0$
	4. $cos\left(θ\right)>0$
	5. $sin\left(θ\right)>cos\left(θ\right)$
	6. $sin\left(θ\right)<cos\left(θ\right)$
* (From Unit 6, Lesson 5.)



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