### Lesson 6 Practice Problems

1. The picture shows angles $A$ and $B$. Explain why $sin(B)=-sin(A)$ and why $cos(B)=-cos(A)$.
* 
1. Which statements are true? Select **all** that apply.
	1. $sin(θ)>0$ for an angle $θ$ in quadrant 2
	2. $cos(θ)>0$ for an angle $θ$ in quadrant 2
	3. $tan(θ)>0$ for an angle $θ$ in quadrant 2
	4. $sin(θ)>0$ for an angle $θ$ in quadrant 3
	5. $cos(θ)>0$ for an angle $θ$ in quadrant 3
	6. $tan(θ)>0$ for an angle $θ$ in quadrant 3
2. The tangent of an angle satisfies $tan(θ)=10$.
	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 $tan(θ)$? Explain how you know.
5. Triangle $ABC$ is an isosceles right triangle in the unit circle.
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	1. Explain why $sin(A)=cos(A)$.
	2. Use the Pythagorean Theorem to explain why $2(sin(A))^{2}=1$.
* (From Unit 6, Lesson 5.)
1. Triangle $DEF$ is similar to triangle $ABC$. The scale factor going from $△DEF$ to $△ABC$ is 3.
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	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 $sin(A)=sin(D)$.
* (From Unit 6, Lesson 2.)
1. Which of the following is true for angle $θ$? Select **all** that apply.
* 
	1. $sin(θ)<0$
	2. $sin(θ)>0$
	3. $cos(θ)<0$
	4. $cos(θ)>0$
	5. $sin(θ)>cos(θ)$
	6. $sin(θ)<cos(θ)$
* (From Unit 6, Lesson 5.)



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