Week 4 SI

1. For the following θ values, find the exact value of the expressions
	1. If θ = 135°, find $cos⁡(-θ)$, $cos⁡(2θ)$, and $cos^{2}⁡(θ)$
	2. If θ = $\frac{π}{4}$, find $sin⁡(-θ)$, $sin^{2}θ$, and $sin 2θ$.
2. Find the amplitude, phase shift, and period of the functions below
	1. $y=4\cos(\left(3x+\frac{π}{2}\right))+3$
	2. $y=-3\sin(\left(3x-\frac{π}{4}\right))-1$
3. Read the following word problems and complete them
	1. The sound waves from the music playing in the room right now are moving in simple harmonic motion with a period of 6 seconds and amplitude of 3 cm. At t=0 seconds, its displacement from rest is -3cm, and initially move in the positive direction. Write an equation modeling this displacement as a function of time and draw a graph to represent the equation.
	2. A buoy floating in the sea is bobbing in simple harmonic motion with period 4 seconds and amplitude 15 inches. Its displacement d from sea level at time t=0 seconds is 0 inches, and initially it moves downwards. Give the equation modeling the displacement as a function of t and graph the equation.
4. Graph the following trigonometric functions
	1. $y=3csc⁡(3x+\frac{π}{2}$)



* 1. $y=-\frac{1}{4}sec(2x-π)$