Name: _____

Graphs of Sine and Cosine Functions

1) Given that $\cos 2x = 1 - 2\sin^2 x$, find the amplitude, period, phase shift and vertical translation for the graph of $y = 3 - 6\sin^2 x$ from $x = 0$ to $x = 2\pi$

2) Identify the amplitude, period, interval, phase shift, vertical translation, starting point and the end point of the graph over one complete cycle for:

$$y = -5 - 10\cos\left(\frac{\pi x}{2} - 2.5\pi\right)$$

3) Write an equation of the sine function that has amplitude 3, phase shift $\pi/3$, and period π.

4) Determine the amplitude, the period, the interval of one cycle and the translations if they exist of the function: $f(x) = 3 + 2\sin(\frac{x}{2} - \pi)$

5) Sound waves can be modeled by sine function of the from $y = a\sin bx$, where x is measured in seconds.
   1) Write an equation of a sound wave whose amplitude is 2 and whose period is $\frac{1}{264}$ seconds.
   2) What is the frequency of the sound wave described in part (1)?

6) Find the equation of the trigonometric function whose graph is shown below: