name:_____

Assignment#3

Math621B due: November 17, 2021

1. Rewrite the equation below in standard form and give the phase shift and vertical displacement.

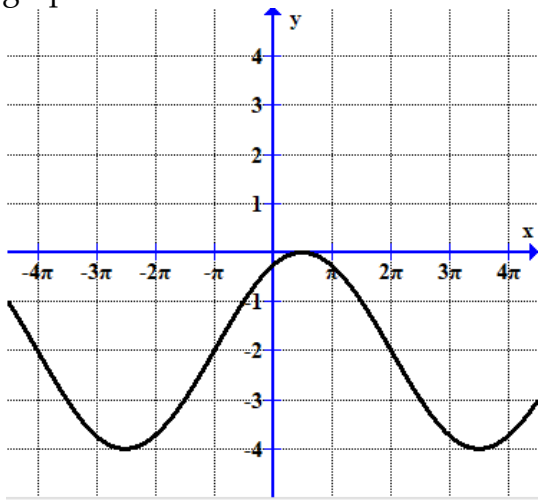
$$y = 12 - 3cos\left(2x - \frac{\pi}{4}\right)$$

2. If you have a point (-3, 6) on the terminal arm of θ, what is $cot\theta$?

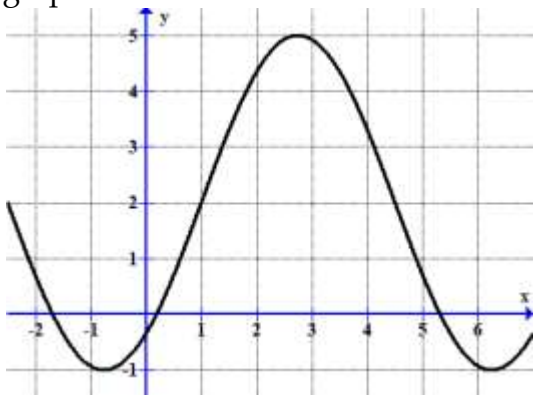
Phase Shift:

Vertical Displacement:

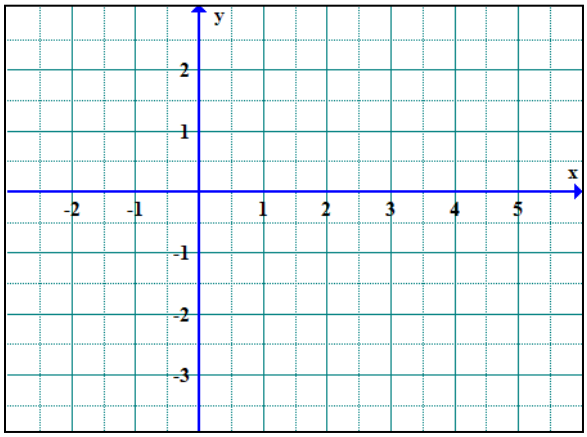
3. Write an equation for the following graph:



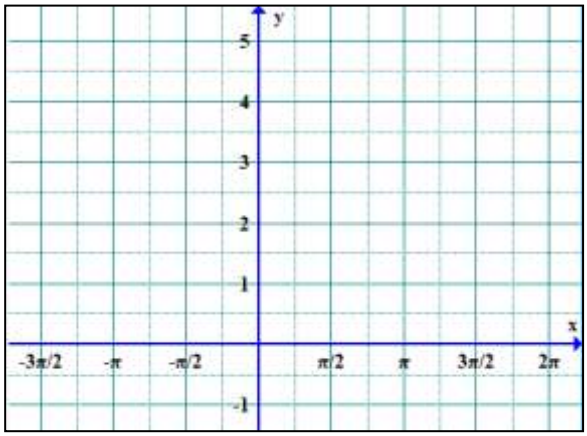
4. Write an equation for the following graph:



5. Draw a graph for
$y = -2sin\frac{\pi}{3}(x + 2) - 1$



6. Draw a graph for $y = sin2\left(x + \frac{3\pi}{4}\right) + 3$



7. The height above the ground of the Slingshot ride is modeled by $h(t) = 13.6cos[0.27(t - 10)] + 22$, where h is the height in feet and t is the time in seconds. Within the first 20 seconds, at what times will the rider be exactly 30 feet off the ground?

8. A sinusoidal curve has a minimum point at $\left(-\frac{\pi}{2}, -3\right)$ and the closest maximum point to the right is $\left(\frac{3\pi}{2}, 5\right)$. Determine an equation for this curve.