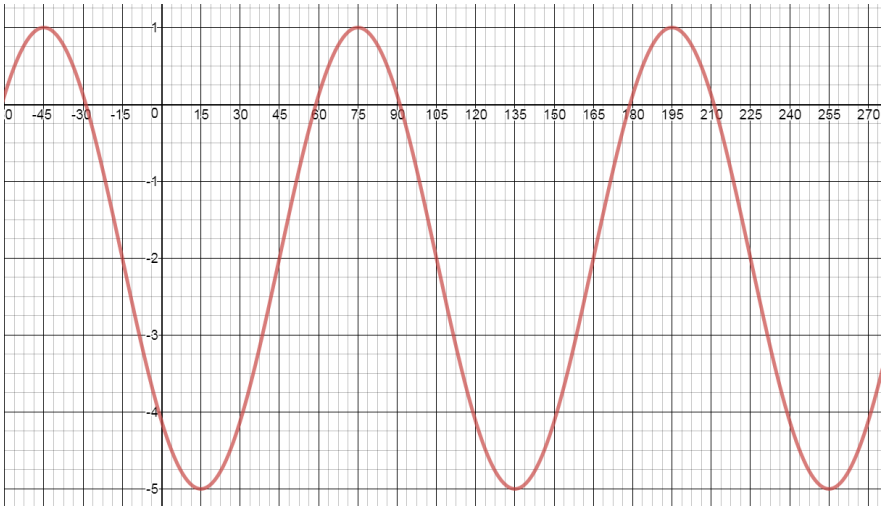
Alg2 Unit 3 HW 10 Name: _____Period: _____

1. Write a sine and a cosine equation given the graph.



   a. Sine _____

   b. Cosine _____

2. Given the transformations, write the equations.

   a. Cosine

      VD 3

      HD $\frac{1}{5}$

      Equation:

   b. Sine

      Period $1080°$

      VT -4

      HT $-60°$

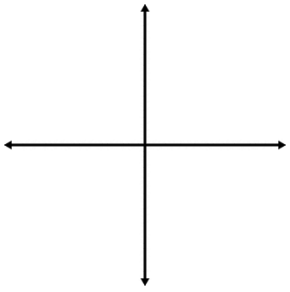
      Equation:

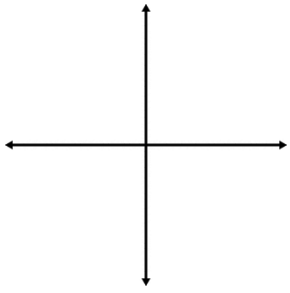
3. Find the exact value.

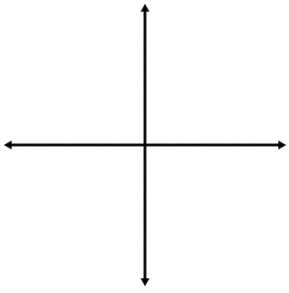
   a. $\csc 675°$

   b. $\sin(-3\pi)$

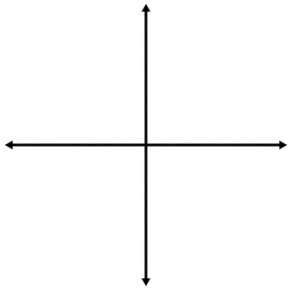
   c. $\tan\frac{4\pi}{3}$







4. List the reference angle as well as a positive and negative co-terminal angle.



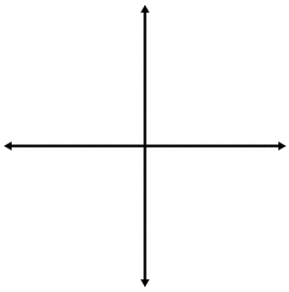
$-750°$

Reference Angle:

Positive co-terminal:

Negative co-terminal:

5. Given that $cos\theta = -\frac{\sqrt{3}}{2}$ in Q2, find the rest of the 6 trig functions.



$sin\theta =$ $csc\theta =$

$cos\theta =$ $sec\theta =$

$tan\theta =$ $cot\theta =$

6. Solve.

a. $2log_5 12 - log_5 4 = log_5 x^2$ b. $4e^{x-2} = 40$ c. $7^{x-4} = 67$

7. Given $f(x) = \sqrt{x-3} - 9$ and $g(x) = 7x^2$

a. Find $f^{-1}(x)$ b. Find $f\big(g(-2)\big)$

8. You buy a BMW for $42,000. Later you realize you can't afford your school loans, so must sell the car after only 2 years. Sadly, your car has been depreciating at a rate of 20% each year.

a. How much is your car worth now (after 2 years)?

b. If you sell your car for what it's worth after 2 years and put that money into a savings account that compounds interest continually at a rate of 4.5%, how much will you have in 4 years?

c. How many years would you have to leave the money in the account to pay off your predicted student loans of $60,000?