Answer each question neatly on the line provided.

Name: _____ ID: _____

1. (5 points) Evaluate $\sin^{-1}(\cos\frac{3\pi}{4})$.

1. _____

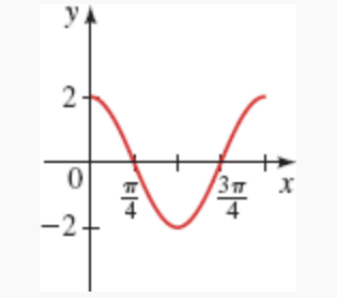
2. (5 points) Find $\tan\left(\cos^{-1}(-\frac{\sqrt{2}}{2})\right)$.

2. _____

3. (5 points) Find $\sin t$ if $\sec t = 3$ and the terminal point of t is in qaudrant IV.

3. _____

4. (5 points) Sketch the graph $y = 4 - \sin(2x)$.

5. (5 points) Find a, b and k so that the graph 

is the sketch of $y = k \sin a(x - b)$.

5. _____

6. (5 points) Evaluate $\tan \frac{11\pi}{6}$.

6. _____

7. (5 points) Evaluate $\sin(-\frac{41\pi}{4})$.

7. _____

8. (5 points) If $\tan t > 0$ and $\sin t < 0$, in which quadrant is t?

8. _____

9. (5 points) A sector of a circle has central angle 145°. Find the area of the sector if the radius of the circle is 6 m.

9. _____

10. (5 points) A 600 ft. guy wire is attached to the top of a communications tower. If the wire makes an angle of 65° with the tower, how tall is the communications tower?

10. _____

11. (5 points) Evaluate $\sec(690°)$.

12. (5 points) Solve $8e^{2x+1} = 40$ for x.

12. _____

13. (5 points) Solve $\log_2 x + \log_2(x-3) = 2$ for x.

13. _____

14. (5 points) Solve $4 - \log(3-x) = 3$ for x.

14. _____

15. (5 points) Find the missing coordinate of $P(-\frac{3}{5}, ?)$ using the fact that P lies on the unit circle in quadrant III.

15. _____

16. (5 points) How long will it take an investment of \$1000 to double in value if the interest rate is 8.5% per year, compounded continuously. (You may use e or ln in your answer.)

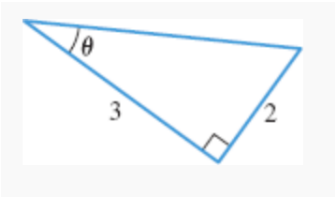
16. _____

17. (5 points) An initial bacteria count in a culture is 500. After one hour there are 600 bacteria. How long will it take for the bacteria count to double, if the bacteria count grows exponentially. (You may use e or ln in your answer.)

17. _____

18. (5 points) Solve $10^{x+3} = 6^{2x}$ for x. (You may use e or ln in your answer.)

18. _____

19. (5 points) Use the figure 

to find $\tan\theta + \sin\theta$.

19. _____

20. (5 points) Sketch one period of the graph $y = 2\sin(\frac{1}{2}x - \frac{\pi}{3})$.