MAC 1114 **EXAM TWO** FALL-2015

1 (20 points)

(a) (10 points) Find the value of $2 + \sin^2(75°) + \sin^2(15°)$. Explain your answer.

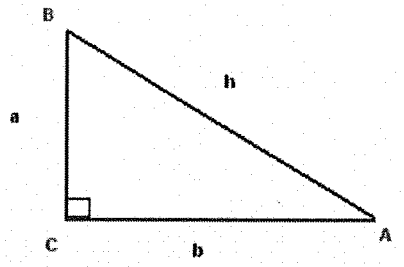
(b) (10 points) Use the reference angle to find the exact value of $\sin(-135°)$. Explain your answer.

2 (10 points) A circle has a radius 9 feet. Find the length of the arc intercepted by a central angle of 220°.

3 (15 points) Determine the amplitude, period, and phase shift of $y = \frac{1}{2}\sin(x - \frac{\pi}{4})$. Then graph the function (you should graph the function for more than one period).

4 (15 points) Graph the function $y = 2\tan(x - \frac{\pi}{2})$.

5 (15 points) Use the right triangle shown in the picture to find b, c, and B. We know that $a = 5$, $A = 60°$. You need to use trigonometric functions for this question, other methods will be disregarded.



6 (25 points)

(a) (4 points) Find the exact value of $\cos^{-1}(-\frac{\sqrt{2}}{2})$. Explain your answer.

(b) (3 points) Find the exact value of $\cos(\cos^{-1}(0.4))$. Explain your answer.

(c) (3 points) Find the exact value of $\sin^{-1}(-2)$. Explain your answer.

(d) (3 points) Find the exact value of $\sin^{-1}\left(\sin(\frac{2\pi}{3})\right)$. Explain your answer.

(e) (3 points) Find the exact value of $\tan\left(\tan^{-1}(12)\right)$. Explain your answer.

(f) (4 points) Find the exact value of $\tan^{-1}\left(\tan(\frac{4\pi}{3})\right)$. Explain your answer.

(g) (5 points) Find the exact value of $\tan\left(\sin^{-1}(-\frac{3}{5})\right)$. Explain your answer.