I. **MULTIPLE CHOICE:**

1. _____ IN THE FUNCTION $f(x) = 4\sin(x+\pi) - 8$, TO WHAT DOES THE '4' CORRESPOND ?
   A. CHANGE OF AMPLITUDE B. CHANGE OF PERIOD
   C. HORIZONTAL SHIFT D. VERTICAL SHIFT E. NONE OF THESE

2. _____ WHAT IS THE HORIZONTAL SHIFT OF THE FUNCTION $f(x) = \cos(x)$?
   A. UP 1 B. DOWN 1 C. LEFT 1 D. IT HAS NO HORIZONTAL SHIFT E. NONE OF THESE

3. _____ WHAT IS THE VERTICAL SHIFT OF THE FUNCTION $f(x) = \sin(x-\pi)$?
   A. UP π B. DOWN π C. LEFT π D. IT HAS NO VERTICAL SHIFT E. NONE OF THESE

4. _____ WHAT IS THE AMPLITUDE OF THE FUNCTION $f(x) = -5\cos(3x) - 2$?
   A. -5 B. 3 C. 5 D. -2 E. NONE OF THESE

5. _____ WHAT IS THE STANDARD INTERVAL WE WOULD USE TO GRAPH ONE PERIOD OF THE FUNCTION $f(x) = \sin(2x)$?
   A. $[0,\pi)$ B. $[0,2\pi)$ C. $\left(-\pi/2, \pi/2\right)$ D. $(-\pi,\pi)$ E. NONE OF THESE

6. _____ WHAT IS THE HORIZONTAL SHIFT OF THE FUNCTION $f(x) = \sin(x-\pi)$?
   A. RIGHT π B. LEFT π C. UP π D. IT HAS NO HORIZONTAL SHIFT E. NONE O0F THESE

7. _____ IN THE FUNCTION $f(x) = 4\cos(-2x) + 5$, TO WHAT DOES THE '-5' CORRESPOND ?
   A. CHANGE OF AMPLITUDE B. CHANGE OF PERIOD
   C. HORIZONTAL SHIFT D. VERTICAL SHIFT E. NONE OF THESE

8. _____ IN THE FUNCTION $f(x) = -3\cos(x+\frac{\pi}{2}) - 1$, WHICH VALUE CORRESPONDS TO THE HORIZONTAL SHIFT?
   A. -3 B. $+\frac{\pi}{2}$ C. -1 D. THERE IS NO HORIZONTAL SHIFT E. NONE OF THESE

II. SKETCH THE GRAPH OF EACH OF THE FOLLOWING FUNCTIONS, **AS DEMONSTRATED IN CLASS**. BE SURE TO LABEL YOUR AXES CAREFULLY!

9. $f(x) = -2\cos(x) + 1$

10. $f(x) = -5\sec(2x) - 1$

11. $f(x) = -2\sin\left(\frac{1}{2}x\right)$

12. $f(x) = \tan(2x)$

13. $f(x) = \sec(x+\pi) + 1$

14. $f(x) = 4\csc(x) + 1$