I. **MULTIPLE CHOICE:** WRITE IN THE BLANK SPACE THE LETTER CORRESPONDING TO THE CORRECT RESPONSE. **PLEASE USE <u>ONLY</u> CAPITAL LETTERS**.

1. _____ WHEN SOLVING A TRIGONOMETRIC EQUATION IN THE INTERVAL $[0, 2\pi)$ THE RESULT OF THE QUADRANT CHECK IS QII & QIIII AND THE REFERENCE ANGLE IS $x_R = \pi/3$. WHAT ARE THE SOLUTIONS?

A. $x = 2\pi/3$ & $x = 5\pi/3$ B. $x = 2\pi/3$ & $x = 4\pi/3$ C. $x = 4\pi/3$ & $x = 5\pi/3$

D. $x = \pi/3$ & $x = 4\pi/3$ E. NONE OF THESE

2. _____ WHEN SOLVING THE TRIGONOMETRIC EQUATION IN THE INTERVAL $[0, 2\pi)$, THE RESULT OF THE QUADRANT CHECK IS QII & QIII AND THE **SOLUTIONS** ARE $x = 5\pi/6$ & $x = 7\pi/6$. WHAT IS THE **REFERENCE ANGLE** WHICH PRODUCES THESE SOLUTIONS?

A. $x_R = \pi/3$ B. $x_R = \pi/2$ C. $x_R = \pi/6$ D. $x_R = \pi/4$ E. NONE OF THESE

3. _____ WHAT IS THE RESULT OF THE QUADRANT CHECK WHEN SOLVING THE EQUATION

$$2\cos(x) + 1 = 0.$$

A. QI & QII B. QIII & QIIII C. QII & QIIII D. ALL 4 QUADRANTS E. NONE OF THESE

4. _____ WHEN SOLVING THE EQUATION $4\cos^2(x) - 3 = 0$ WHAT IS THE RESULT OF THE QUADRANT CHECK?

A. ALL 4 QUADRANTS B. QI & QII C. QIII & QIIII D. QII & QIIII E. NONE OF THESE

5. _____ WHEN SOLVING THE EQUATION $4\cos^2(x) - 3 = 0$ IN THE INTERVAL $[0, 2\pi)$, WHAT IS THE REFERENCE ANGLE?

A. $x_R = \pi/6$ B. $x_R = \pi/4$ C. $x_R = \pi/3$

D. THIS EQUATION REQUIRES NO REFERENCE ANGLE E. NONE OF THESE

6. _____ WHAT IS THE RESULT OF THE QUADRANT CHECK WHEN SOLVING THE EQUATION

$$5 - \sqrt{2}\,\sin(x) = 6.$$

A. QIII & QIIII B. QI & QII C. QII & QIII D. NO QUADRANT CHECK IS NEEDED
E. NONE OF THESE

7. _____ WHAT IS THE RESULT OF THE QUADRANT CHECK WHEN SOLVING THE EQUATION

$$\sin(x) + 1 = 1$$

A. QI & QIII B. QII & QIIII C. ALL 4 QUADRANTS
D. NO QUADRANT CHECK IS REQUIRED E. NONE OF THESE

8. _____ WHICH OF THE FOLLOWING EQUATIONS **DOES** REQUIRE A QUADRANT CHECK WHEN SOLVING?

A. $\sin(x) - 1 = 0$ B. $\sin(x) = 0$ C. $\tan(x) + 1 = 0$ D. $\cos(x) + 1 = 0$

E. NONE OF THESE

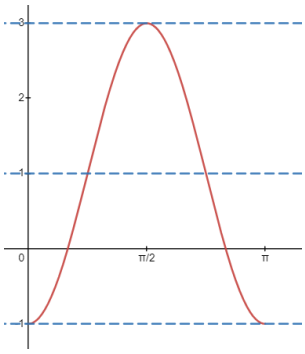
10. _____ WHAT IS THE VERTICAL SHIFT OF THE FUNCTION $f(x) = 2\sin(x) - 2$?

A. SHIFT DOWN 2 B. SHIFT UP 2 C. SHIFT LEFT 2 D. SHIFT RIGHT 2 E. NONE OF THESE

11. _____ WHAT IS THE AMPLITUDE OF THE GRAPH OF THE FUNCTION $f(x) = -2\sin(-3x)$

A. $|-3|$ B. -3 C. $|-2|$ D. -2 E. NONE OF THESE

12. ._____ THIS IS THE GRAPH OF ONE PERIOD OF WHICH OF THE FOLLOWING FUNCTIONS?



A. $f(x) = 2\sin(x) + 1$

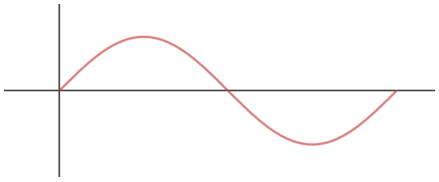
B. $f(x) = 2\sin(2x) + 1$

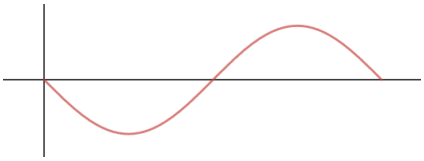
C. $f(x) = -2\cos(2x) + 1$

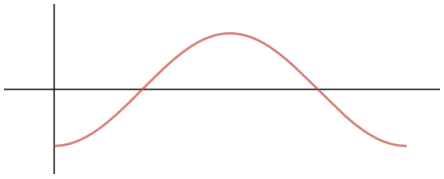
D. $f(x) = 2\cos(2x) + 1$

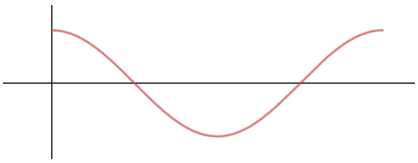
E. NONE OF THESE

13. _____ WHICH OF THESE IS A SKETCH OF ONE PERIOD OF THE GRAPH OF THE FUNCTION $f(x) = -\sin(x)$?

A. 

B. 

C. 

D. 

E. NONE OF THESE

II. GRAPHING: FIND THE INFORMATION FOR, AND SKETCH ONE PERIOD OF, EACH FUNCTION. YOU **MUST** (A) USE ONLY THE METHODS FROM CLASS, AND (B) SHOW YOUR WORK AS DEMONSTRATED IN CLASS.

14. $f(x) = -2\sin(x) - 3$

SHIFT: _____

BASIC SHAPE: _____

AMPLITUDE: _____

INTERVAL: _____

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

SHIFT: _____

BASIC SHAPE: _____

AMPLITUDE: _____

INTERVAL: _____

III. EQUATIONS: FOR EACH OF THE FOLLOWING ITEMS YOU MUST SHOW YOUR WORK NEATLY AND COMPLETELY AS DEMONSTRATED IN THE VIDEO LESSONS.

$\boxed{DRAW\ A\ BOX\ AROUND}$ YOUR FINAL ANSWER.

YOUR WORK MUST BE NEAT, READABLE, AND USE ONLY METHODS DISCUSSED IN CLASS. IF YOU DO NOT SHOW ALL YOUR WORK IN A NEAT AND ORDERLY FASHION, OR **IF YOU USE METHODS OTHER THAN THOSE DISCUSSED IN CLASS**, OR IF YOU DO NOT FOLLOW DIRECTIONS, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

SOLVE EACH EQUATION IN RADIANS ON THE INTERVAL $[0, 2\pi)$.

16. SOLVE EACH EQUATION ON THE INTERVAL $[0, 2\pi)$. YOU MAY USE ONLY METHODS DISCUSSED IN CLASS.

(A) $\cos(x) = 0$	(B) $\sin(x) + 1 = 0$
(C) $\cos^2(x) - 1 = 0$	(D) $\tan(x) = 0$

18. SOLVE THE EQUATION $7.5\sin(x)-4.3=-2$ ON THE INTERVAL $[0,2\pi)$.
YOU MAY USE ONLY METHODS DISCUSSED IN CLASS.

18. SOLVE THE EQUATION $4\cos^2(x)-3=0$ ON THE INTERVAL $[0,2\pi)$.
YOU MAY USE ONLY METHODS DISCUSSED IN CLASS.

19. FOR THE GIVEN INFORMAITON, DRAW AND LABEL AND APPROPRIATE TRIANGLE AND SOLVE THE TRIANGLE.
EXPRESS ANGLES IN <u>DEGREES</u>, AND ROUND ANSWERS TO TWO DECIMAL PLACES.

GIVEN: IN ΔABC, $\measuredangle C=90°$, $\measuredangle B=37°$, $a=73\ cm$