

**I. Draw each angle in standard position with a marker. Indicate direction and (if any) swirlies.**

1.) $\theta = 218^\circ$ 	2.) $\theta = -585^\circ$ 	3.) $\theta = \frac{5\pi}{2}$ 	4.) $\theta = \frac{9\pi}{5}$ 	5.) $\theta = \frac{-65\pi}{36}$ 
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**II. Determine the measure of each angle. Keep units consistent.**

6.)  angle $\theta =$ _____	7.)  angle $\theta =$ _____	8.)  angle $\theta =$ _____	9.)  angle $\theta =$ _____
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**III. Find the reference angle B given angle  $\theta$ . Make sure angle  $\theta$  is between  $0^\circ$  and  $360^\circ$** 

angle $\theta$	Quadrant $\theta$ Lies	Work to find angle B	reference angle B
10.) $322^\circ$			
11.) $128^\circ$			
12.) $776^\circ$			
13.) $-499^\circ$			

**IV. Use appropriate formula to complete each problem below. Round to tenth place. Show work!**

**Arc Length  $\rightarrow s = r \cdot \theta$  or Sector Area  $\rightarrow A = \frac{1}{2} \cdot r^2 \cdot \theta$  where angle  $\theta$  is in radians**

14.)  a.) arc length = _____ b.) sector area = _____	15.) An analog clock reads a time of 7:48. What is the measure of the angle, in radians, between the hour hand and the minute hand of the clock? 	16.)  a.) Perimeter of shaded region = _____ b.) Area of shaded region = _____
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**V. Find the exact value of each function. Remember – NO decimals!**

17.)  $\sin 300^\circ =$  \_\_\_\_\_ 18.)  $\tan 210^\circ =$  \_\_\_\_\_ 19.)  $\cos -225^\circ =$  \_\_\_\_\_ 20.)  $\sin 540^\circ =$  \_\_\_\_\_

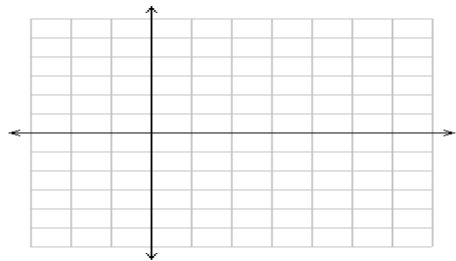
21.)  $\tan\left(\frac{7\pi}{2}\right) =$  \_\_\_\_\_ 22.)  $\cos\left(\frac{11\pi}{6}\right) =$  \_\_\_\_\_ 23.)  $\sin\left(-\frac{17\pi}{6}\right) =$  \_\_\_\_\_ 24.)  $\tan\left(-\frac{2\pi}{3}\right) =$  \_\_\_\_\_

## VI. Find the missing information and graph the given function. Graph MUST be ACCURATE!!!

25.) Given Function:  $y = 3\sin(x - \pi) + 1$

amplitude = \_\_\_\_\_ period = \_\_\_\_\_

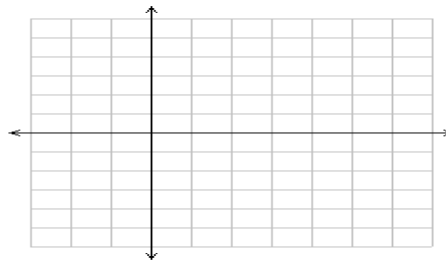
ph. shift = \_\_\_\_\_ vert. shift = \_\_\_\_\_



26.) Given Function:  $y = 2\cos(4x) - 3$

amplitude = \_\_\_\_\_ period = \_\_\_\_\_

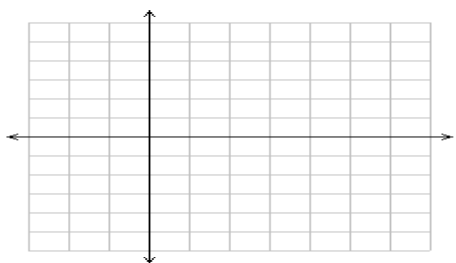
ph. shift = \_\_\_\_\_ vert. shift = \_\_\_\_\_



27.) Given Function:  $y = 2\sin\left(8x + \frac{\pi}{4}\right) - 2$

amplitude = \_\_\_\_\_ period = \_\_\_\_\_

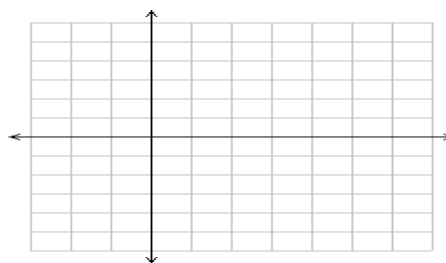
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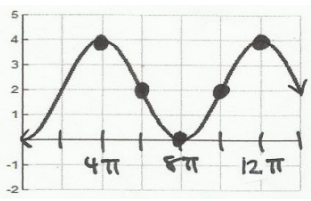
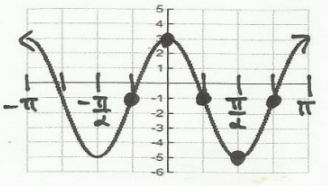
28.) Given Function:  $y = 3\cos\left(\frac{1}{3}x - \frac{\pi}{2}\right) + 3$

amplitude = \_\_\_\_\_ period = \_\_\_\_\_

ph. shift = \_\_\_\_\_ vert. shift = \_\_\_\_\_



## VII. Find the missing information of each given graph to write the function's equation. Show work!

Given/Missing Information	Work to Find a , b , c , and d	Equation for Function
29.) 		
30.) 		

## VIII. Complete each word problem below. Must show work!

31.) The monthly sales  $S$  (in thousands of units) of lawn mowers are approximated by the  $S = 74.50 - 43.75\cos(30^\circ t)$  where  $t$  is the time (in months), with  $t = 1$  corresponding to January 1. What is the first month in which sales equal 100,000 units?

32.) A batted baseball leaves the bat at an angle of  $\theta$  with the horizontal and an initial velocity of  $v_0 = 100$  feet per second. The ball is caught by an outfielder 300 feet from the home plate. The range  $r$  of a projectile is given by  $r = \frac{1}{32}v_0^2 \sin(2\theta)$ . What is the value of the angle of the bat from the ground?