HN Math 3
Unit 7 Review

Name _____
Date _____ Period ___

You are responsible for knowing and being able to use the following formulas:

SOHCAHTOA

(rcosθ, rsinθ)

$l = \theta r$ where θ is in radians

$A = \frac{1}{2}\theta r^2$ where θ is in radians

$\frac{\#\ of\ degrees}{180°} = \frac{\#\ of\ radians}{\pi}$

Period for sine/cosine = $\frac{2\pi}{b}$

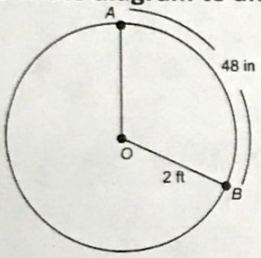
Period for tangent = $\frac{\pi}{b}$

Tangent Asymptotes: period ÷ 2

Find the coordinates of a point that lies on a circle centered at the origin with a radius of 3 and lies on the terminal side of the angle listed.

1. −323° (2.4, 1.8)
2. −4° (2.99, −0.21)
3. 370° (2.95, 0.52)

Use the diagram to answer the questions.



4. Find ∠AOB in radians.
2 radians

5. Find the area of the sector AOB.
4 feet² or 576 inches²

6. Find the arc length.
50.76 units

7. Find the sector area.
228.42 units²

Write each measure in radians. Express the answer in terms of π.

8. 315° $\frac{7\pi}{4}$
9. −450° $\frac{-5\pi}{2}$
10. 210° $\frac{7\pi}{6}$

Write each measure in degrees. If necessary, round your answer to the nearest degree.

11. $\frac{7\pi}{4}$ 315°
12. $\frac{5\pi}{3}$ 300°
13. 6π 1080°

Find the exact values of cosθ , sinθ , and tanθ for each angle measure.

14. −480°
cos(−480°) = −1/2
sin(−480°) = √3/2
tan(−480°) = −√3

15. 135°
cos(135°) = $-\frac{\sqrt{2}}{2}$
sin(135°) = $\frac{\sqrt{2}}{2}$
tan(135°) = −1

16. $-\frac{2\pi}{3}$
cos(−2π/3) = −1/2
sin(−2π/3) = −√3/2
tan(−2π/3) = √3

Write a cosine function for each description.

17. amplitude = $\frac{1}{4}$, period = 2, $a > 0$
$y = \frac{1}{4}\cos(\pi\theta)$

18. amplitude = 3, period = $\frac{\pi}{2}$ $a < 0$
$y = 3\cos(4\theta)$

Evaluate each expression. Write your answer in exact form. If the expression is undefined, write *undefined*.

19. tan (−30°) $-\frac{\sqrt{3}}{3}$
20. tan 270° undefined
21. tan 210° $\frac{\sqrt{3}}{3}$

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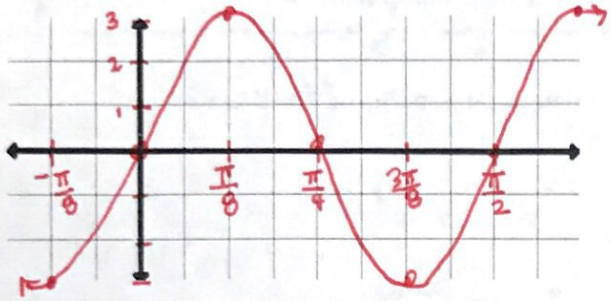
22. State the period and asymptotes for $y = tan(2x)$

P = $\frac{\pi}{2}$ Asymp: $x = \frac{\pi}{4}$, $x = -\frac{\pi}{4}$

Find the amplitude and period of each function. Then sketch one cycle of the graph of each function. Show all work.

23. $y = 3 \sin 4x$

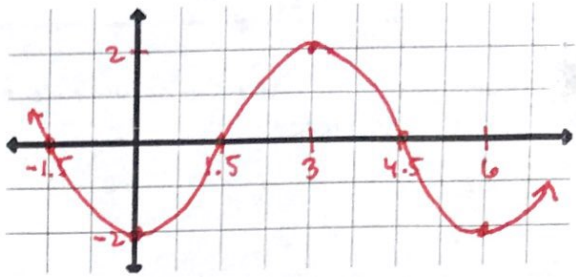


Amplitude: 3

Period: π/2

Vertical Shift: none

24. $y = -2 \cos \frac{\pi}{3}$



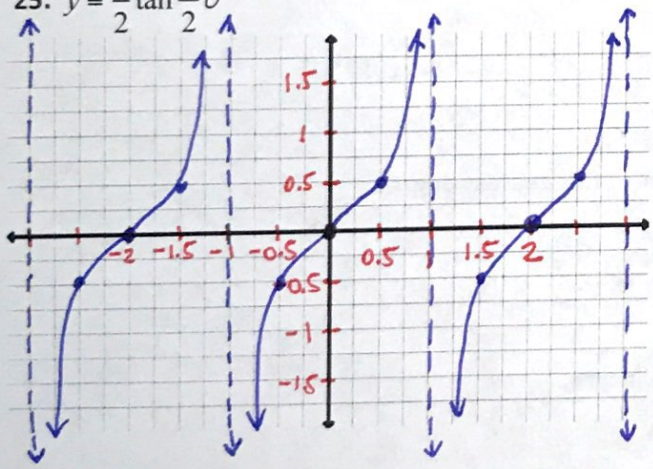
Amplitude: 2 (reflect over x-axis)

Period: 6

Vertical Shift: none

Graph at least 2 cycles of the following:

25. $y = \frac{1}{2} \tan \frac{\pi}{2} \theta$



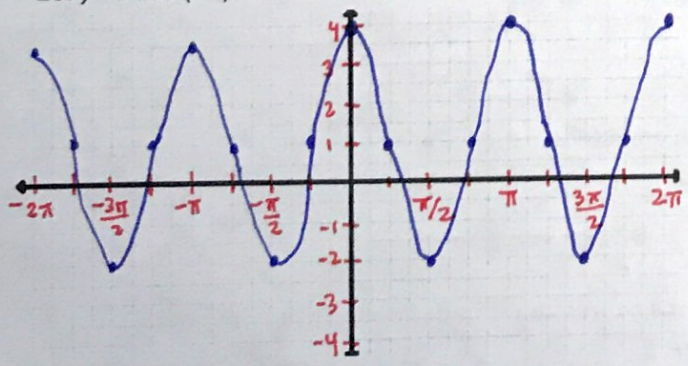
a = $\frac{1}{2}$

b = π/2

period = 2

asymptotes: x = 1
x = -1

26. $y = 3 \cos (2\theta) + 1$



Amplitude: 3

Period: π

Vertical Shift: up 1