



Name _____ Period _____ Date _____

NON-CALCULATOR SECTION

Vocabulary: Define each word and give an example.

1. Period
2. Frequency
3. Ambiguous Case

Short Answer:

4. Explain how to rewrite a sine function as a cosine function.
5. In what situations would you use the Law of Cosine to solve a triangle?

Review:

6. Solve the equation $\ln(3x+4) - \ln(2x+1) = 5$.
7. Find the composition $f \circ g$ if $f(x) = 2x - 3$ and $g(x) = x^2 + 3$.
8. Give the reference angle for $\theta = 200^\circ$.
9. Evaluate exactly: $\sin \frac{7\pi}{4}$



Problems:

Be sure to show all work used to obtain your answer. Circle or box in the final answer.

10. State the amplitude, period, phase shift, vertical translation, domain and range for the sinusoid.

$$y = 3 \sin\left(\frac{1}{2}x - \pi\right) - 3$$

11. Use transformations to describe how that graph of the function is related to a basic trigonometric graph.

$$y = 3 - 2 \sin(2x + \pi)$$

12. What are the vertical asymptotes for the graph of $y = \tan(x + \pi)$?

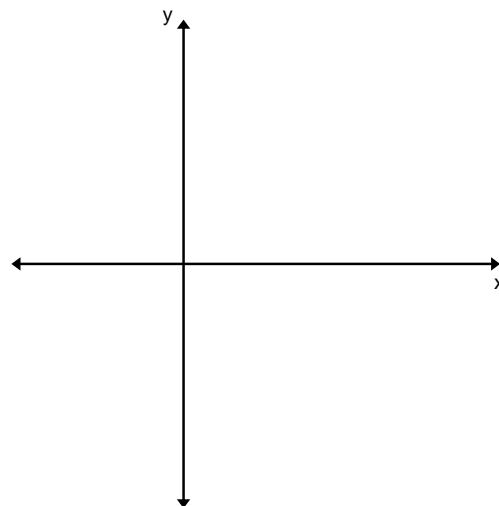
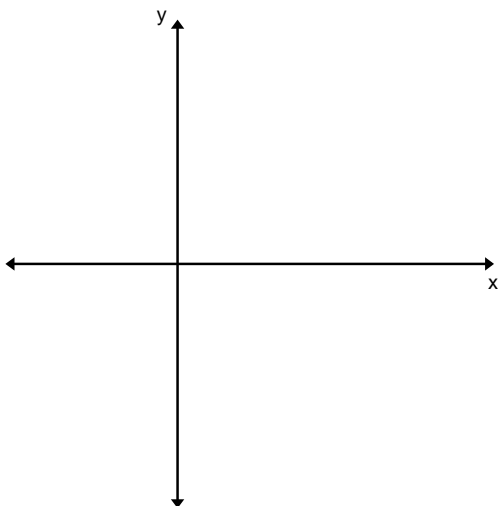
13. Find the period, domain and range of $y = \tan \frac{1}{2}x$.

14. Find the equation of a sinusoid with period $\frac{\pi}{8}$, an amplitude of 5, and goes through the point $(-1, 0)$.

15. Graph two periods of the functions below. Make sure to mark your quarter points on the x-axis.

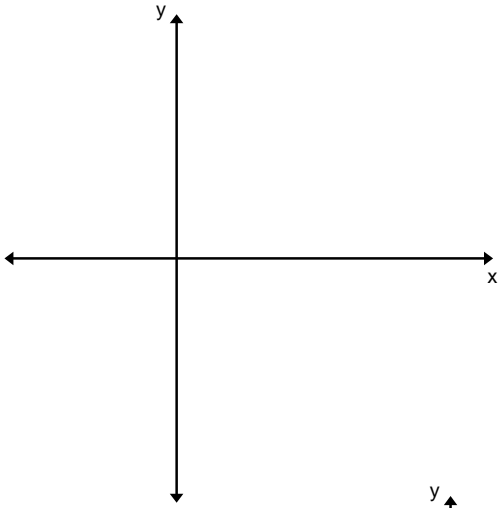
a. $y = -3 \cos 2x$

b. $y = -2 - \sin 3x$

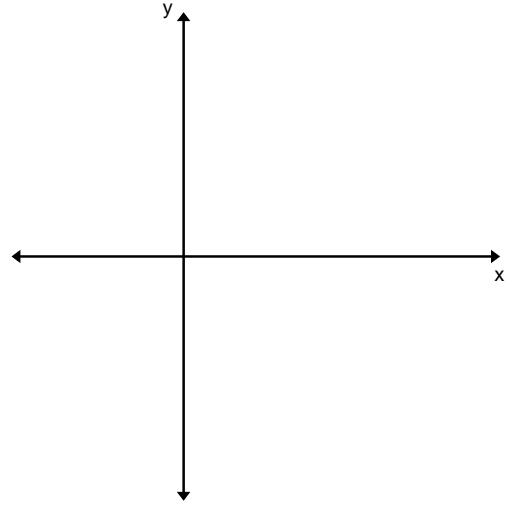




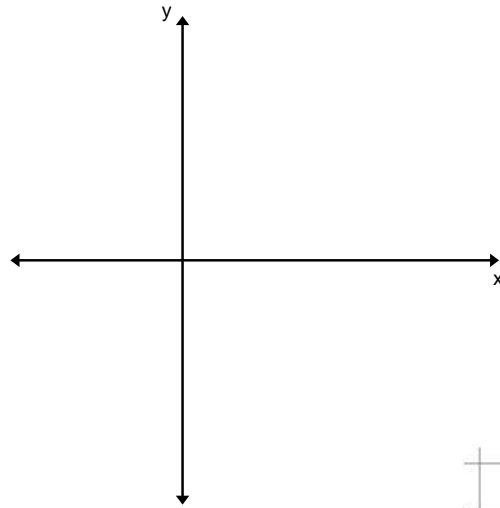
c. $y = 2\sin(\pi x - \pi)$



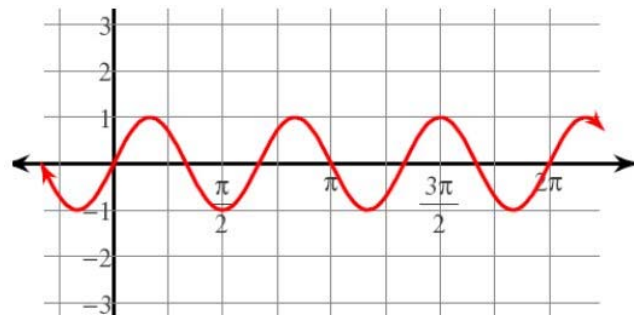
d. $y = 1 + \cos\left(x + \frac{\pi}{4}\right)$



e. $y = \tan 2x$



16. Write a sine equation for the periodic function.



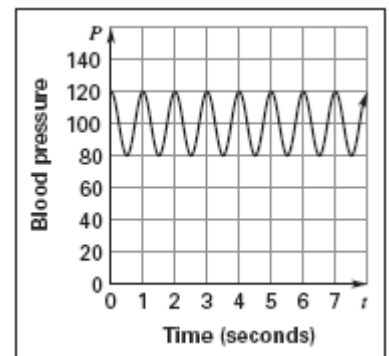
17. Which equation represents the graph of a person's blood pressure shown?

A. $P = 100 - 20\cos(2\pi t)$

B. $P = 100 + 20\cos(2\pi t)$

C. $P = 120 + 20\sin(2\pi t)$

D. $P = 100 - 20\sin(2\pi t)$





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CALCULATOR SECTION

In problems 1 – 3, determine if one, two or no triangles can be made given the following information.

1. $m\angle A = 40^\circ, a = 13, b = 16$

2. $m\angle A = 51^\circ, a = 4, b = 5$

3. $m\angle A = 48^\circ, a = 28, b = 20$

Solve $\triangle ABC$. If there are two solutions, make sure to solve for both! Round angles to nearest degree and lengths to the nearest tenths place.

4. $m\angle A = 26^\circ, m\angle C = 35^\circ, b = 13$

5. $m\angle A = 66^\circ, c = 21, b = 16$

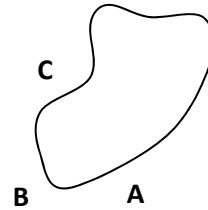
6. $m\angle A = 42^\circ, m\angle C = 73^\circ, c = 34$

7. $m\angle B = 21^\circ, b = 17, c = 32$



8. $a = 24, b = 12, c = 17$

9. Kelly must find the distance between points A and C on opposite sides of a lake. She locates a point B that is 425 ft from A and 672 ft from C. If the angle at B is 68° , what is the distance AC?



10. Find the area of a triangle with sides 13, 15, 18.
11. Find the area of the triangle: $A = 52^\circ, b = 14m, c = 21m$

12. State whether or not the function appears to be periodic. $f(x) = 3|\sin(2x)| - 4x + 1$

Determine whether the function is periodic. If it is, state the period, domain and range.

13. $f(x) = |\sin x|$

14. $f(x) = 2 \cos 2x + 3 \sin 5x$