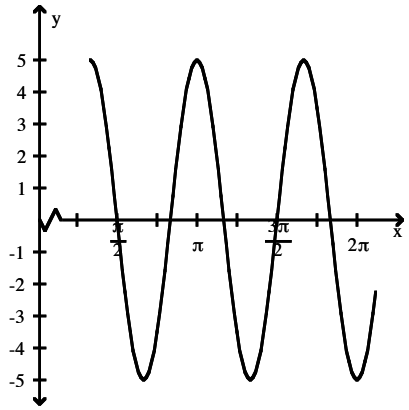
Trigonometry -- Practice Test 4 -- Sarah Bannen Name_____

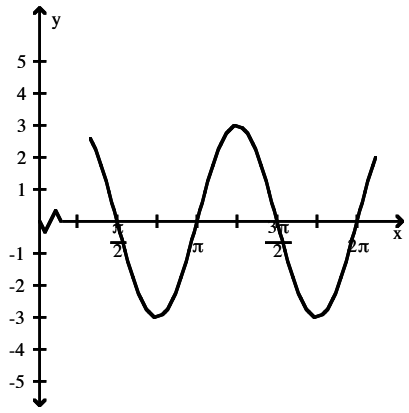
Questions 1-17 are each worth 1 point. Questions 18-21 are each worth 2 points. Final Score_____/25

**The function graphed is of the form y = a sin bx or y = a cos bx, where b > 0. Determine the equation of the graph.**

1)




2)



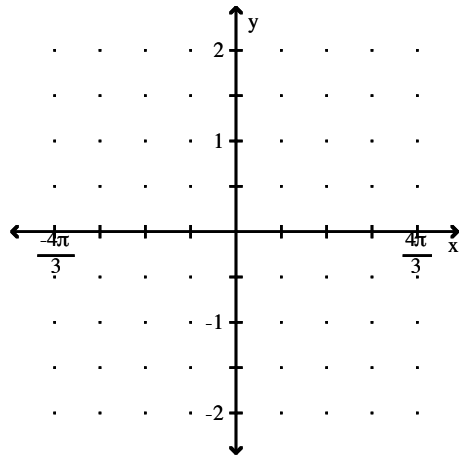

**Give the amplitude or period as requested.**

3) Amplitude of $y = 3 \cos \frac{1}{4}x$

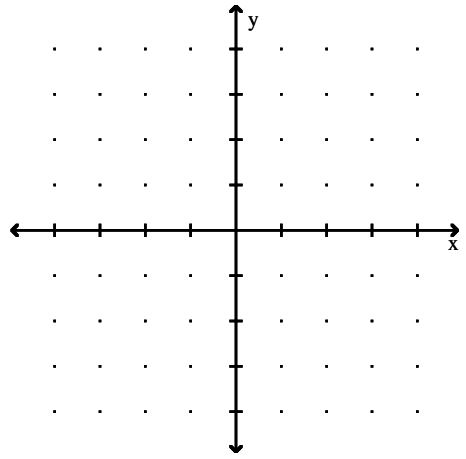
4) Period of $y = -4 \cos x$

**Graph the function.**

5) $y = \sin \frac{3}{4}x$




6) $y = \cos \frac{1}{2}x$

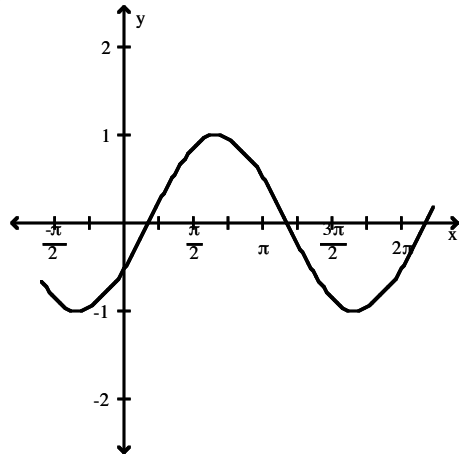



**Solve the problem.**

7) The voltage E in an electrical circuit is given by $E = 4 \cos 150\pi t$, where t is time measured in seconds. Find the frequency of the function (that is, find the number of cycles or periods completed in one second).

**The function graphed is of the form y = cos x + c, y = sin x + c, y = cos(x − d), or y = sin(x − d), where d is the least possible positive value. Determine the equation of the graph.**

8)



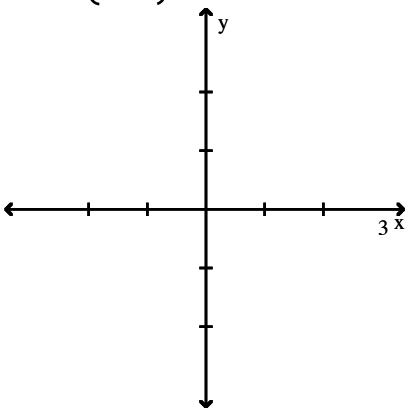

**Find the specified quantity.**

9) Find the amplitude of y = -2 cos (4x − π).

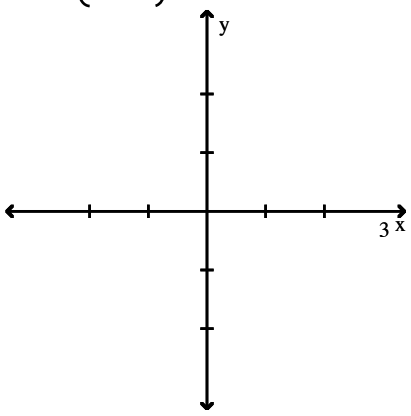
10) Find the period of $y = 5 \cos\left(\frac{1}{2}x + \frac{\pi}{3}\right)$.

**Graph the function.**

11) $y = -\frac{1}{2} \sin\left(x - \frac{\pi}{4}\right)$

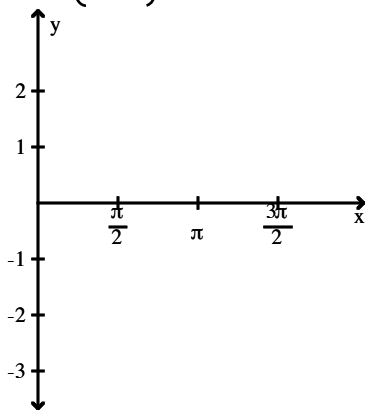


12) $y = \frac{3}{4}\cos\left(x + \frac{\pi}{4}\right)$




**Graph the function over a one–period interval.**

13) $y = -2\cos\left(x + \frac{\pi}{2}\right)$




**Find the phase shift of the function.**

14) $y = -5\cos\left(\frac{1}{4}x + \frac{\pi}{4}\right)$

15) $y = 3\sin\left(4x - \frac{\pi}{2}\right)$

**Solve the problem.**

16) A rotating beacon is located 9 ft from a wall. The distance from the beacon to the point on the wall where the beacon is aimed is given by

$a = 9|\sec 2\pi t|$,

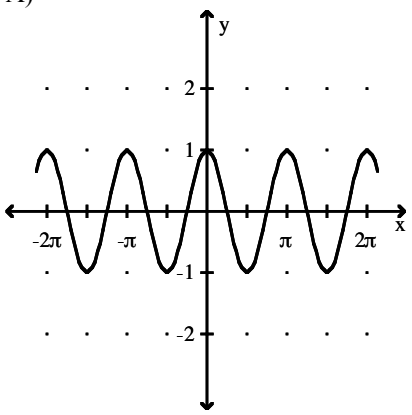
where t is time measured in seconds since the beacon started rotating. Find a for t = 0.29 seconds. Round your answer to the nearest hundredth.

17) Suppose that a weight on a spring has an initial position of s(0) = 6 inches and a period of P = 2 seconds. Find a function s(t) = a cos(2πFt) that models the displacement of the weight.

**Match the function with its graph.**

18) 1) $y = \sin 2x$ 2) $y = 2 \cos x$
3) $y = 2 \sin x$ 4) $y = \cos 2x$

A)

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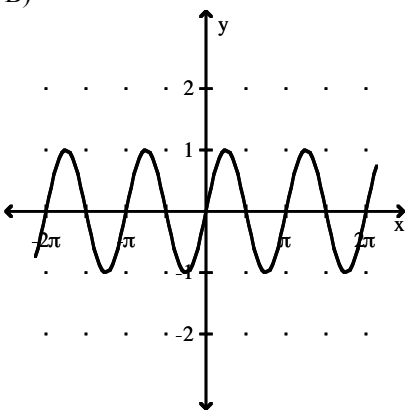
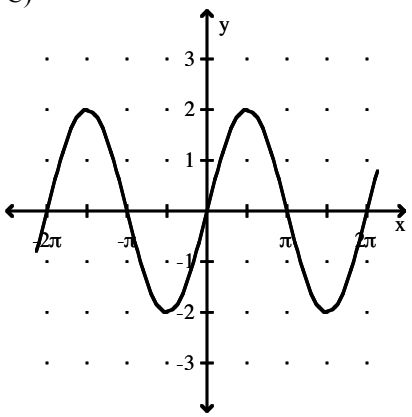
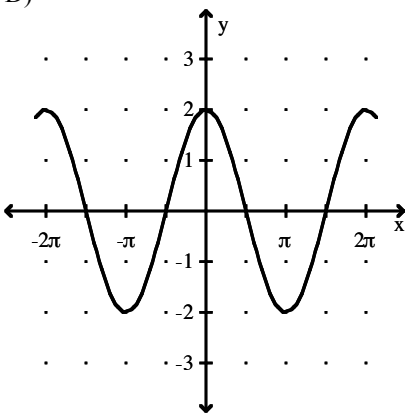



C)




D)



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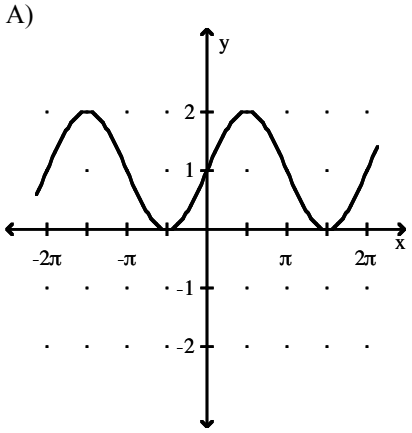
19) 1) $y = 1 + \sin x$ 2) $y = 1 + \cos x$

3) $y = -1 + \sin x$ 4) $y = -1 + \cos x$

A)

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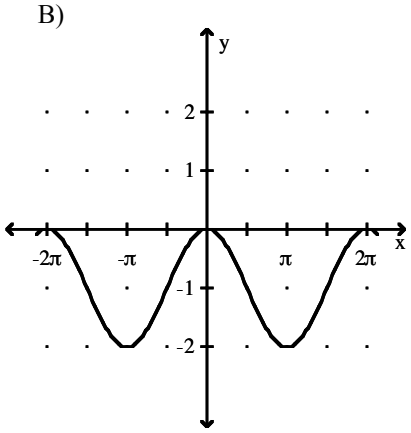


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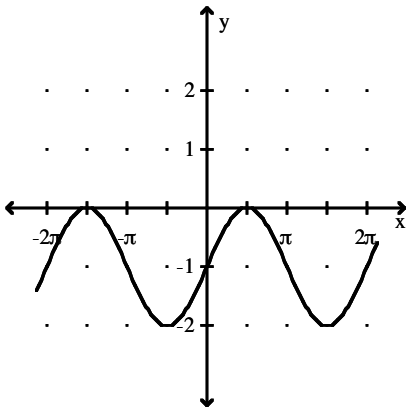


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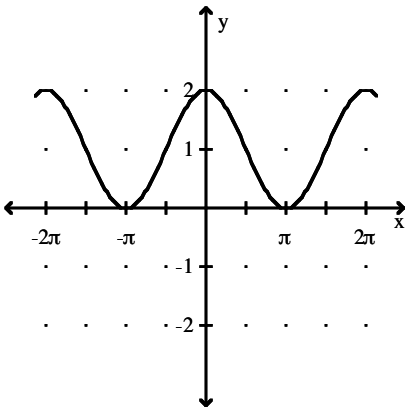

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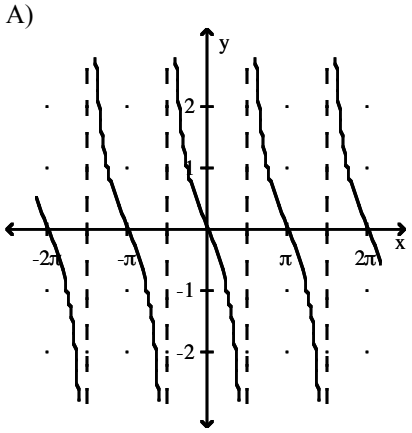
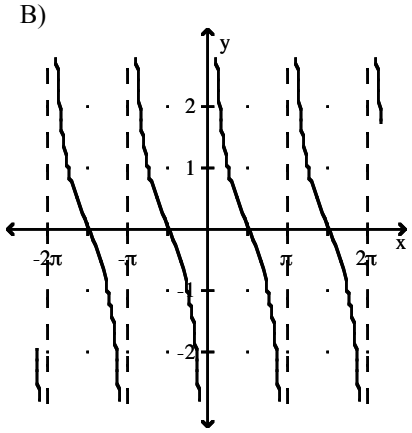
20) 1) $y = \tan x$ 2) $y = \cot x$

3) $y = -\tan x$ 4) $y = -\cot x$

A)




B)

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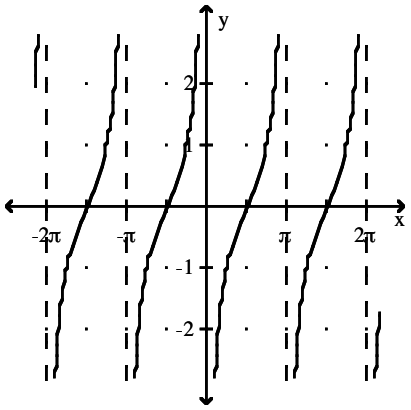
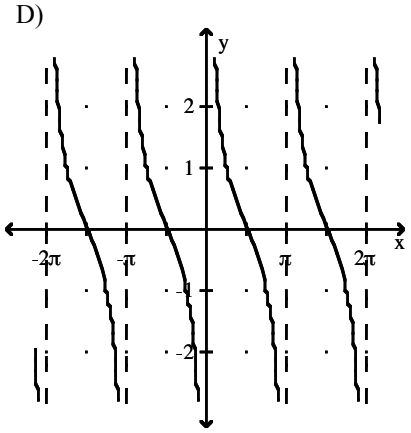



D)



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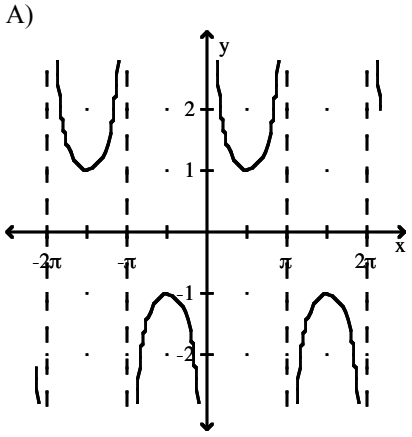
21) 1) y = sec x  2) y = csc x
3) y = −sec x  4) y = −csc x

A)

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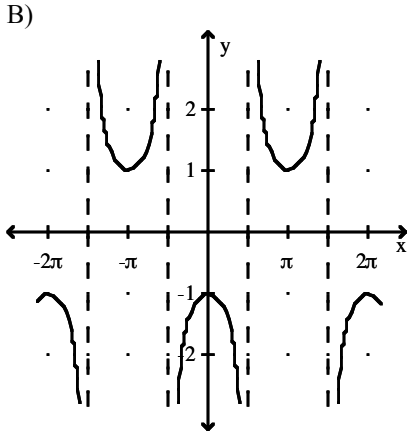
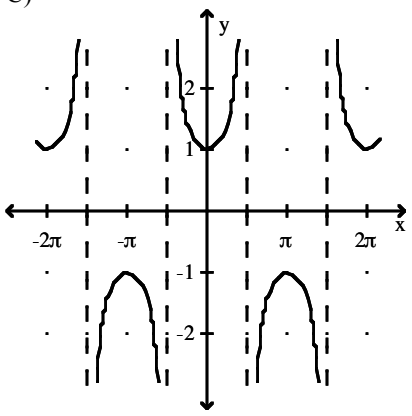



C)




D)