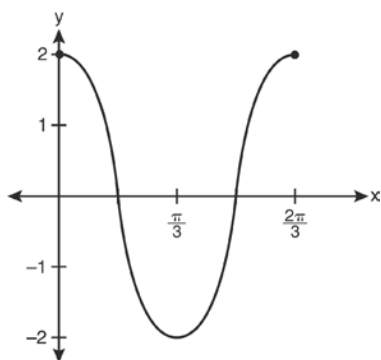
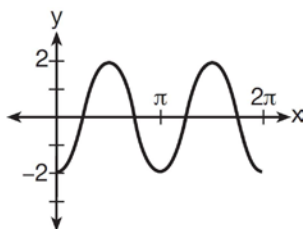


A2.A.72: Identifying the Equation of a Trigonometric Graph 2: Write the trigonometric function that is represented by a given periodic graph

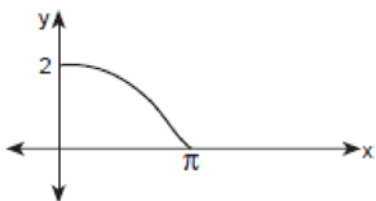
- 1 Which equation is represented by the graph below?



- 2 Which equation represents the graph below?

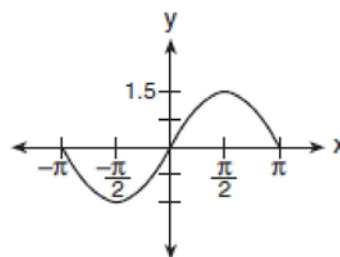


- 3 The accompanying diagram shows a section of a sound wave as displayed on an oscilloscope.



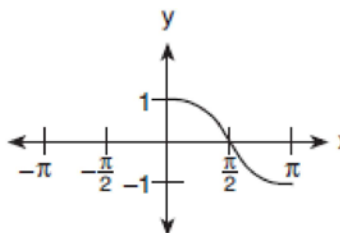
Which equation could represent this graph?

- 4 A radio transmitter sends a radio wave from the top of a 50-foot tower. The wave is represented by the accompanying graph.

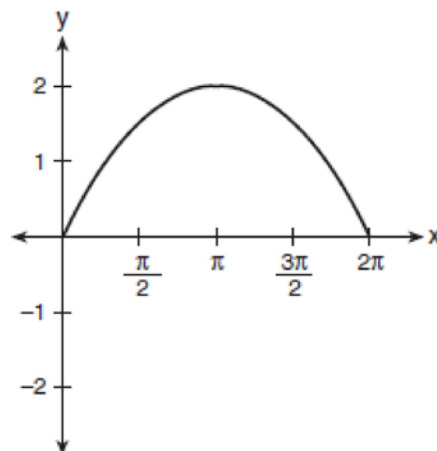


What is the equation of this radio wave?

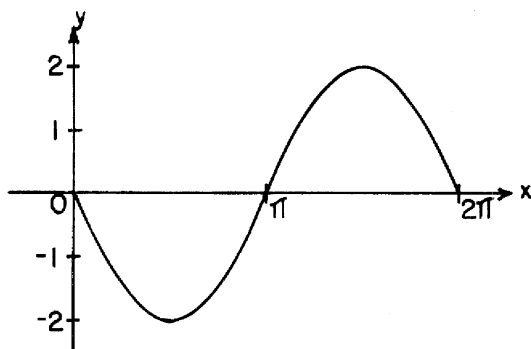
- 5 Which equation is represented by the accompanying graph?



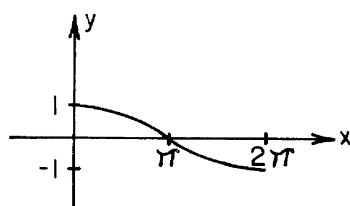
- 6 Which equation is represented by the accompanying graph?



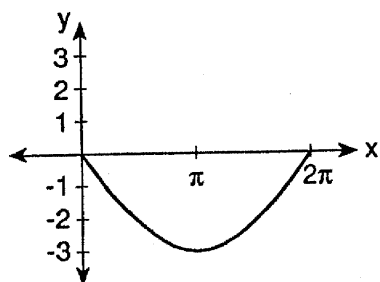
- 7 Which is an equation of the graph shown below?



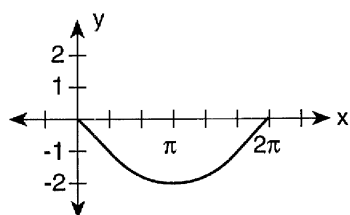
- 8 Which is an equation of the graph shown below?



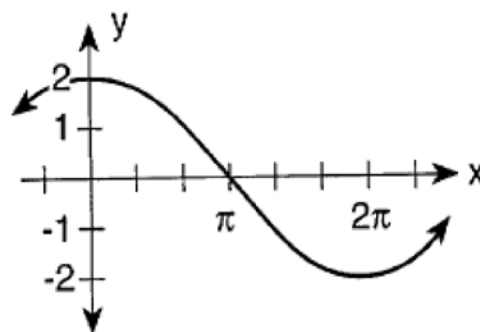
- 9 Which equation is represented by the graph in the diagram below?



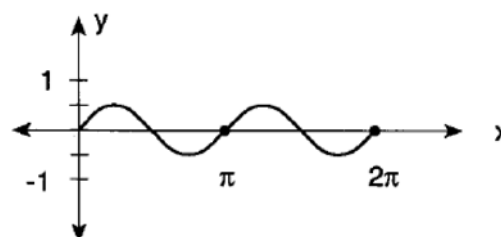
- 10 Which equation is represented by the graph below?



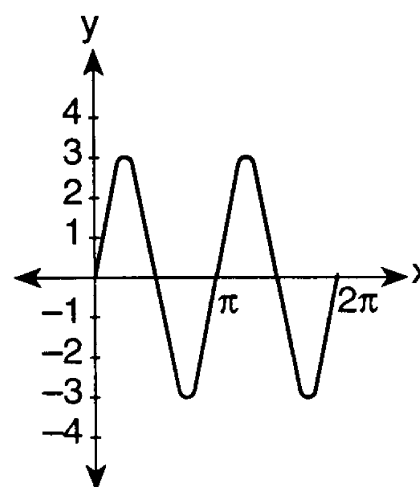
- 11 Which equation is represented in the graph below?



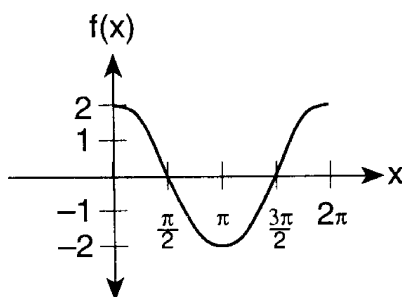
- 12 Which equation is represented in the accompanying graph?



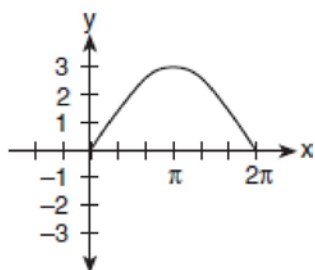
- 13 Which equation is represented by the graph in the accompanying diagram?



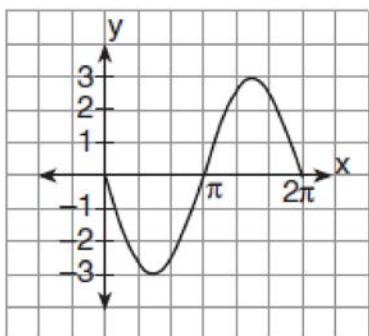
- 14 Which trigonometric function is shown in the graph below?



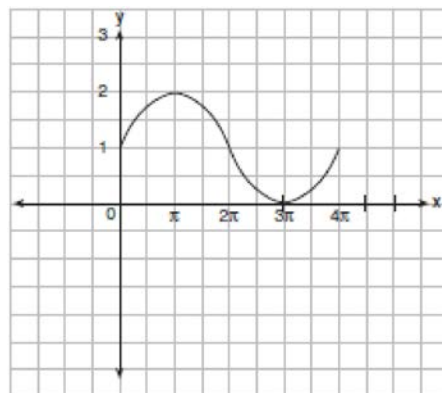
- 15 Which equation is represented by the graph in the accompanying diagram?



- 16 Which equation is represented on the graph shown below?

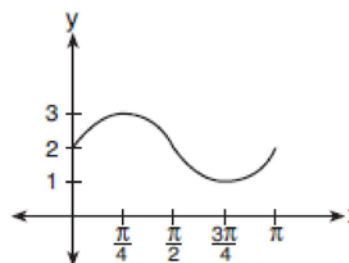


- 17 In physics class, Eva noticed the pattern shown in the accompanying diagram on an oscilloscope.



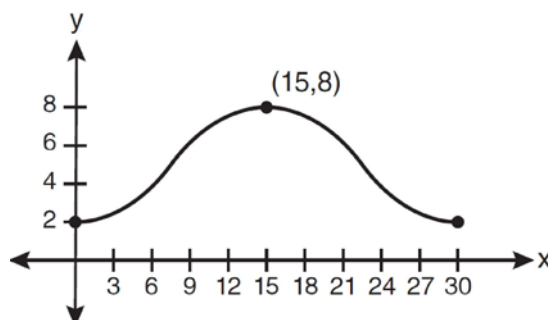
Which equation best represents the pattern shown on this oscilloscope?

- 18 The accompanying graph represents a portion of a sound wave.



Which equation best represents this graph?

- 19 Which equation is graphed in the diagram below?



A2.A.72: Identifying the Equation of a Trigonometric Graph 2: Write the trigonometric function that is represented by a given periodic graph

Answer Section

1 ANS:

$$y = 2 \cos 3x$$

REF: 011320a2

2 ANS:

$$y = -2 \cos 2x$$

REF: 061306a2

3 ANS:

$$y = 2 \cos \frac{x}{2}$$

Since none of the answers has a translation, the point (0,2) must result from a dilation of 2 of the cosine function.

$$\text{period} = \frac{2\pi}{b}$$

$$4\pi = \frac{2\pi}{b}$$

$$b = \frac{2\pi}{4\pi}$$

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

At $x = \pi$, the function is $\frac{1}{4}$ complete, so the period is 4π .

REF: 010214b

4 ANS:

$$y = 1.5 \sin x$$

The maximum and minimum of this sine function indicates the amplitude is 1.5.

REF: 060608b

5 ANS:

$$y = \cos x$$

REF: 060711b

6 ANS:

$$y = 2 \sin \frac{1}{2} x$$

REF: 010419siii

7 ANS:

$$y = -2 \sin x$$

REF: 068633siii

8 ANS:

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

REF: 018917siii

9 ANS:

$$y = -3 \sin \frac{1}{2} x$$

REF: 089522siii

10 ANS:

$$y = -2 \sin \frac{1}{2} x$$

REF: 069721siii

11 ANS:

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

REF: 089725siii

12 ANS:

$$y = \frac{1}{2} \sin 2x$$

REF: 019822siii

13 ANS:

$$y = 3 \sin 2x$$

REF: 089820siii

14 ANS:

$$f(x) = 2 \cos x$$

REF: 010019siii

15 ANS:

$$y = 3 \sin \frac{1}{2} x$$

REF: 010119siii

16 ANS:

$$y = -3 \sin x$$

REF: 080121siii

17 ANS:

$$y = \sin\left(\frac{1}{2}x\right) + 1$$

The sine function has been translated +1. Since the maximum is 2 and the minimum is 0, the amplitude is 1.

$$\text{period} = \frac{2\pi}{b}$$

$$4\pi = \frac{2\pi}{b}$$

$$b = \frac{2\pi}{4\pi}$$

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

REF: 010612b

18 ANS:

$$y = 2\sin x + 2$$

The sine function has been translated +2. Since the maximum is 3 and the minimum is 1, the amplitude is 1.

$$\text{period} = \frac{2\pi}{b}$$

$$\pi = \frac{2\pi}{b}$$

$$b = 2$$

REF: 080717b

19 ANS:

$$y = -3\cos\left(\frac{\pi}{15}x\right) + 5$$

$$\frac{2\pi}{b} = 30$$

$$b = \frac{\pi}{15}$$

REF: 011227a2