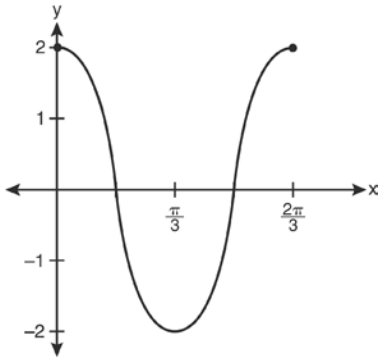
Name: _____

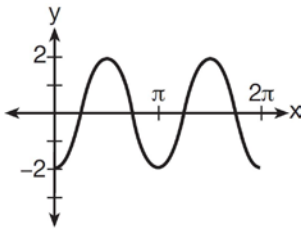
F.IF.C.7: Graphing Trigonometric Functions 6a

1 Which equation is represented by the graph below?



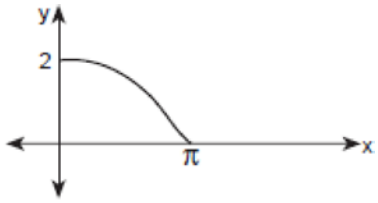
1) $y = 2\cos 3x$
2) $y = 2\sin 3x$
3) $y = 2\cos\frac{2\pi}{3}x$
4) $y = 2\sin\frac{2\pi}{3}x$

2 Which equation represents the graph below?



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

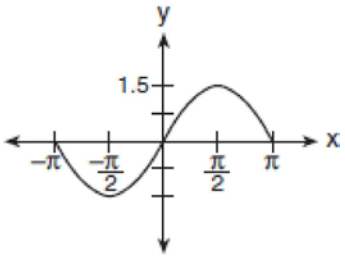
3 The accompanying diagram shows a section of a sound wave as displayed on an oscilloscope.



Which equation could represent this graph?

1) $y = 2\cos\frac{x}{2}$
2) $y = 2\sin\frac{x}{2}$
3) $y = \frac{1}{2}\cos\frac{x}{2}$
4) $y = \frac{1}{2}\sin\frac{\pi}{2}x$

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

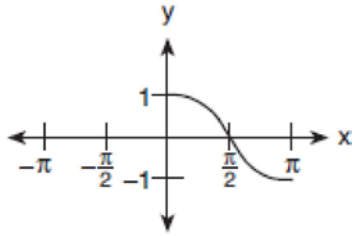


What is the equation of this radio wave?

1) $y = \sin x$
2) $y = 1.5\sin x$
3) $y = \sin 1.5x$
4) $y = 2\sin x$

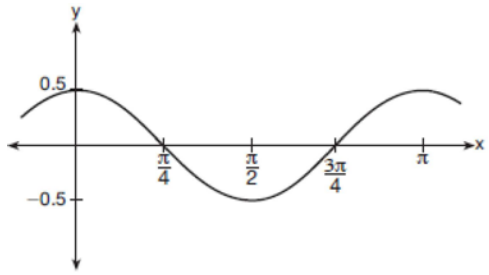
Name: _____

5 Which equation is represented by the accompanying graph?



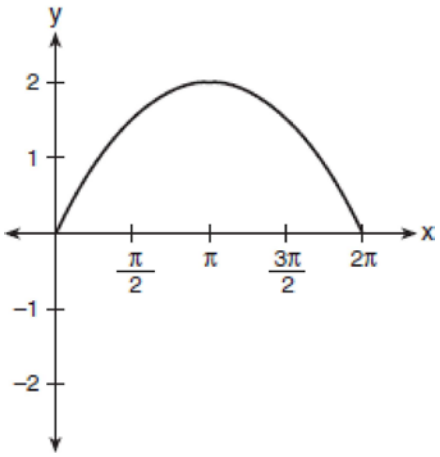
1) $y = \cos x$
2) $y = \cos \frac{1}{2} x$
3) $y = \cos 2x$
4) $y = \frac{1}{2} \cos x$

6 Which equation is represented by the graph shown below?



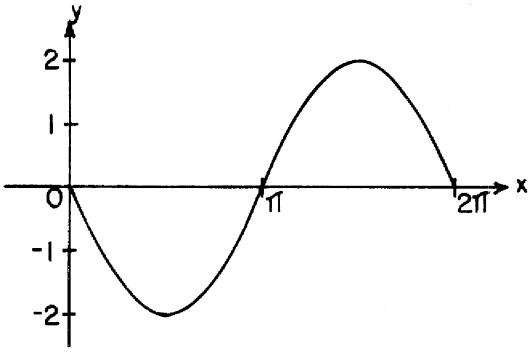
1) $y = \frac{1}{2} \cos 2x$
2) $y = \cos x$
3) $y = \frac{1}{2} \cos x$
4) $y = 2 \cos \frac{1}{2} x$

7 Which equation is represented by the accompanying graph?



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

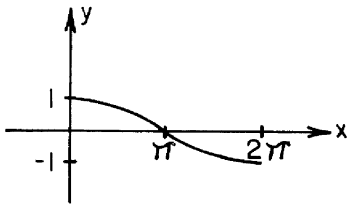
8 Which is an equation of the graph shown below?



1) $y = \sin 2x$
2) $y = -\sin 2x$
3) $y = -2 \sin x$
4) $y = 2 \sin x$

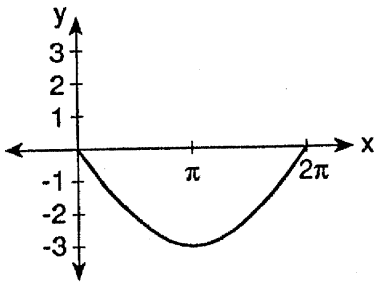
Name: _____

9 Which is an equation of the graph shown below?



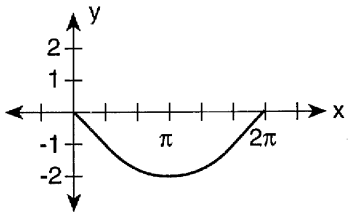
1) $y = \cos\frac{1}{2}x$
2) $y = \cos 2x$
3) $y = \sin\frac{1}{2}x$
4) $y = \sin 2x$

10 Which equation is represented by the graph in the diagram below?



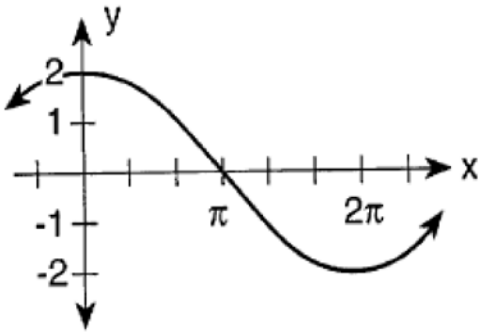
1) $y = 3\sin 2x$
2) $y = 3\sin\frac{1}{2}x$
3) $y = -3\sin 3x$
4) $y = -3\sin\frac{1}{2}x$

11 Which equation is represented by the graph below?



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

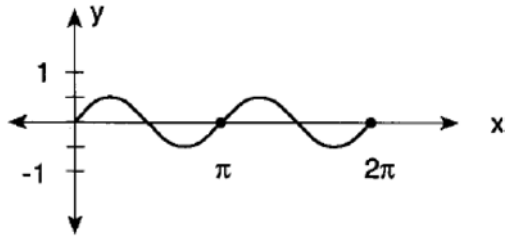
12 Which equation is represented in the graph below?



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

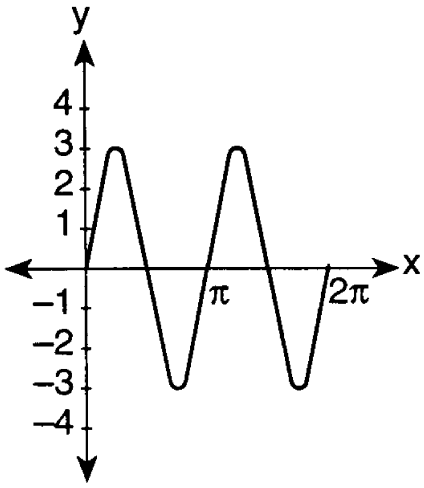
Name: _____

13 Which equation is represented in the accompanying graph?



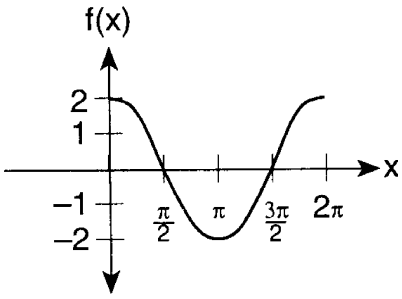
1) $y = 2\sin 2x$
2) $y = \frac{1}{2}\sin\frac{1}{2}x$
3) $y = 2\sin\frac{1}{2}x$
4) $y = \frac{1}{2}\sin 2x$

14 Which equation is represented by the graph in the accompanying diagram?



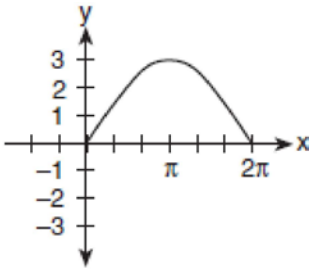
1) $y = 3\sin 2x$
2) $y = 2\sin 3x$
3) $y = 3\sin x$
4) $y = 2\sin 4x$

15 Which trigonometric function is shown in the graph below?



1) $f(x) = 2\sin x$
2) $f(x) = 2\cos x$
3) $f(x) = \cos 2x$
4) $f(x) = \sin 2x$

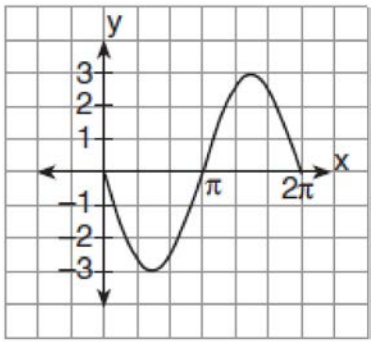
16 Which equation is represented by the graph in the accompanying diagram?



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

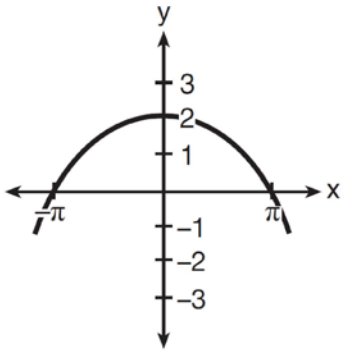
Name: _____

17 Which equation is represented on the graph shown below?



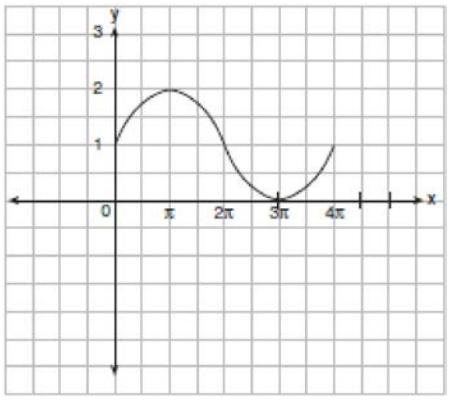
1) $y = 3\sin x$
2) $y = -3\sin x$
3) $y = 3\cos x$
4) $y = -\sin 3x$

18 Which equation could be represented by the graph below?



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

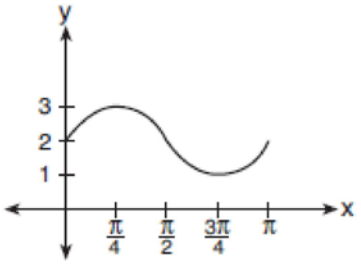
19 In physics class, Eva noticed the pattern shown in the accompanying diagram on an oscilloscope.



Which equation best represents the pattern shown on this oscilloscope?

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

20 The accompanying graph represents a portion of a sound wave.

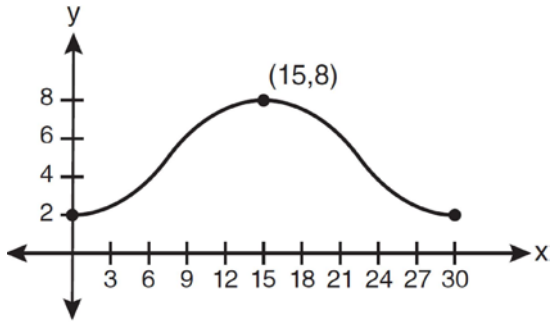


Which equation best represents this graph?

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

Name: _____

21 Which equation is graphed in the diagram below?



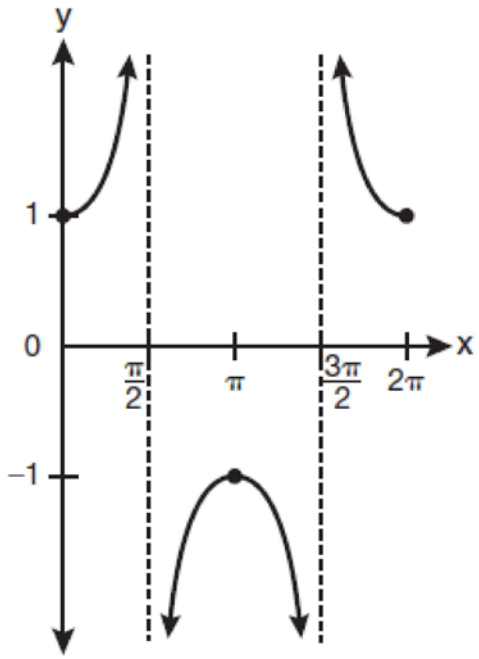
1) $y = 3\cos\left(\frac{\pi}{30}x\right) + 8$

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

3) $y = -3\cos\left(\frac{\pi}{30}x\right) + 8$

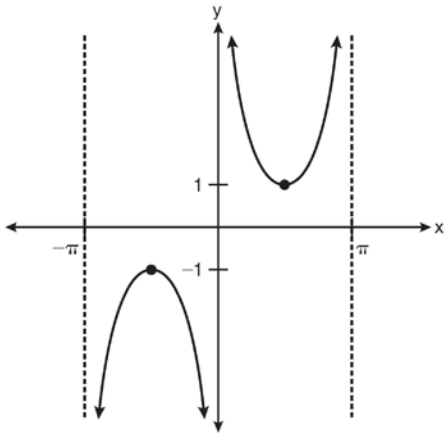
4) $y = -3\cos\left(\frac{\pi}{15}x\right) + 5$

22 Which equation is represented by the graph below?



1) $y = \cot x$
2) $y = \csc x$
3) $y = \sec x$
4) $y = \tan x$

23 Which equation is sketched in the diagram below?



1) $y = \csc x$
2) $y = \sec x$
3) $y = \cot x$
4) $y = \tan x$

F.IF.C.7: Graphing Trigonometric Functions 6a
Answer Section

1 ANS: 1 REF: 011320a2
2 ANS: 3 REF: 061306a2
3 ANS: 1
Since none of the answers has a translation, the point (0,2) must result from a dilation of 2 of the cosine function.

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

$$\text{period} = \frac{2\pi}{b}$$
$$4\pi = \frac{2\pi}{b}$$
$$b = \frac{2\pi}{4\pi}$$
$$b = \frac{1}{2}$$

REF: 010214b
4 ANS: 2
The maximum and minimum of this sine function indicates the amplitude is 1.5.

REF: 060608b
5 ANS: 1 REF: 060711b
6 ANS: 1 REF: 061708aii
7 ANS: 1 REF: 010419siii
8 ANS: 3 REF: 068633siii
9 ANS: 1 REF: 018917siii
10 ANS: 4 REF: 089522siii
11 ANS: 1 REF: 069721siii
12 ANS: 3 REF: 089725siii
13 ANS: 4 REF: 019822siii
14 ANS: 1 REF: 089820siii
15 ANS: 2 REF: 010019siii
16 ANS: 2 REF: 010119siii
17 ANS: 2 REF: 080121siii
18 ANS: 2 REF: 081607a2

19 ANS: 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

20 ANS: 4

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

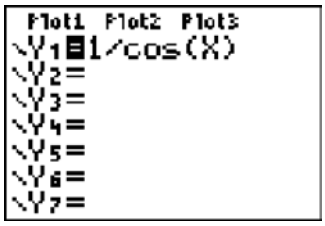
21 ANS: 4

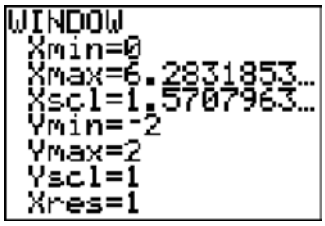
$$\frac{2\pi}{b} = 30$$

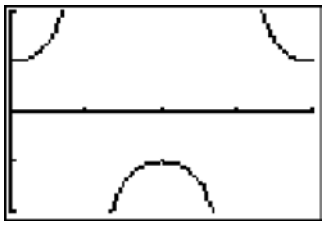
$$b = \frac{\pi}{15}$$

REF: 011227a2

22 ANS: 3

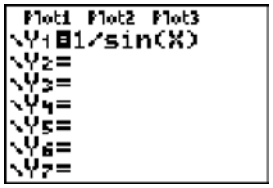


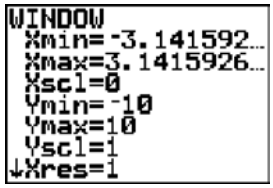


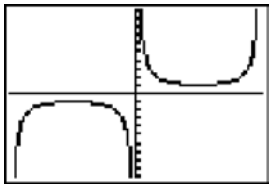


REF: 061020a2

23 ANS: 1







REF: 011123a2