More Practice with Sine and Cosine Graphs

Determine the amplitude and period of each function.

1. $y = \sin 4x$

Amplitude 1

Period $\frac{\pi}{2}$

2. $y = \cos 5x$

Amplitude 1

Period $\frac{2\pi}{5}$

3. $y = 2 \sin x$

Amplitude 2

Period 2π

4. $y = -4 \sin 3x$

Amplitude 4

Period $\frac{2\pi}{3}$

5. $y = 2 \sin (-4x)$

Amplitude 2

Period $\frac{\pi}{2}$

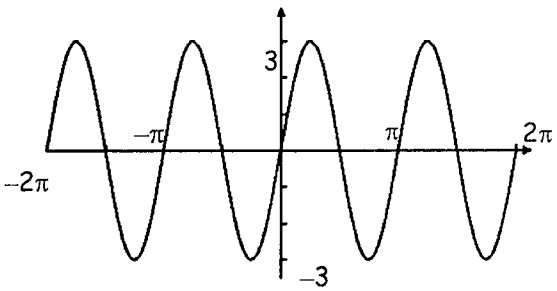
6. $y = 3 \sin \frac{2}{3}x$

Amplitude 3

Period 3π

Give the amplitude and period of each function graphed below. Then write an equation of each graph using either sine or cosine.

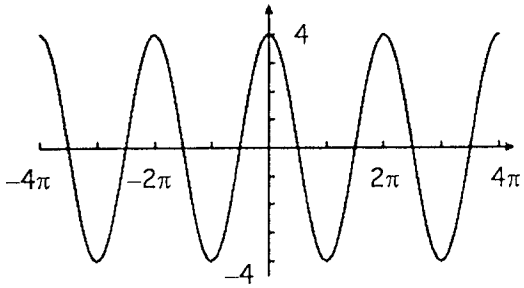
7.



Amplitude 3 **Period** π

Equation $y = 3\sin 2x$

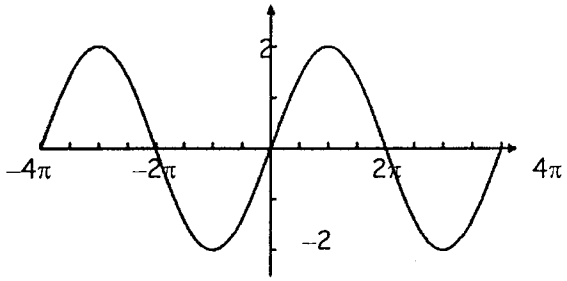
8.



Amplitude 4 **Period** 2π

Equation $y = 4\cos x$

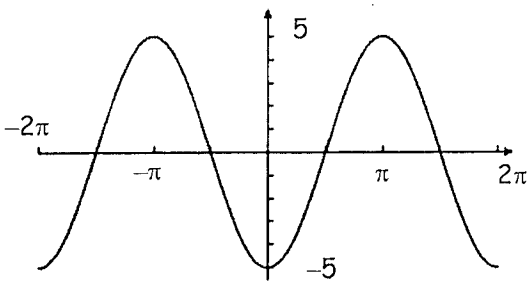
9.



Amplitude 2 **Period** 4π

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

10.



Amplitude 5 **Period** 2π

Equation $y = -5\cos x$

Determine the amplitude, period, phase shift, and vertical shift for each.

17. $y = 2 + 3\sin\left(4x + \frac{\pi}{2}\right) = 2 + 3\sin\left(4\left(x + \frac{\pi}{8}\right)\right)$

Amplitude 3

Period $\frac{\pi}{2}$

Phase Shift $-\frac{\pi}{8}$ (left $\frac{\pi}{8}$)

Vertical Shift 2 (up 2)

18. $y = 2\cos(x - \pi)$

Amplitude 2

Period 2π

Phase Shift π (right π)

Vertical Shift none

19. $y = \frac{1}{2}\cos 2x - 4$

Amplitude $\frac{1}{2}$

Period π

Phase Shift none

Vertical Shift -4 (down 4)

20. $y = 4\sin(x - \pi) - 3$

Amplitude 4

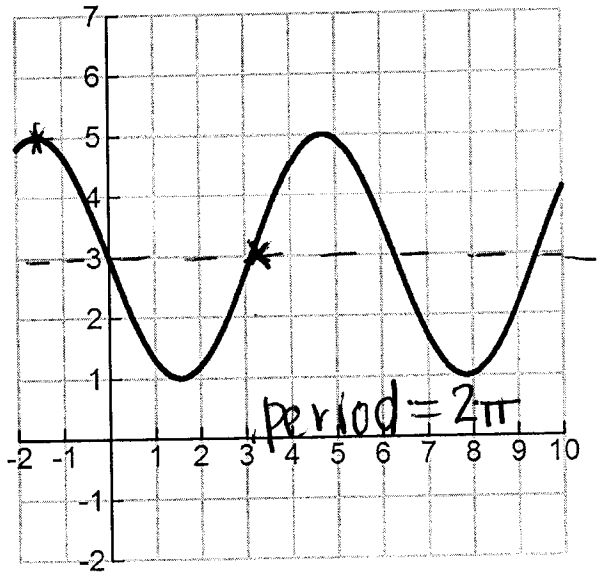
Period 2π

Phase Shift π (right π)

Vertical Shift -3 (down 3)

Identify the equation of the graphs below for each Sine and Cosine.

21.



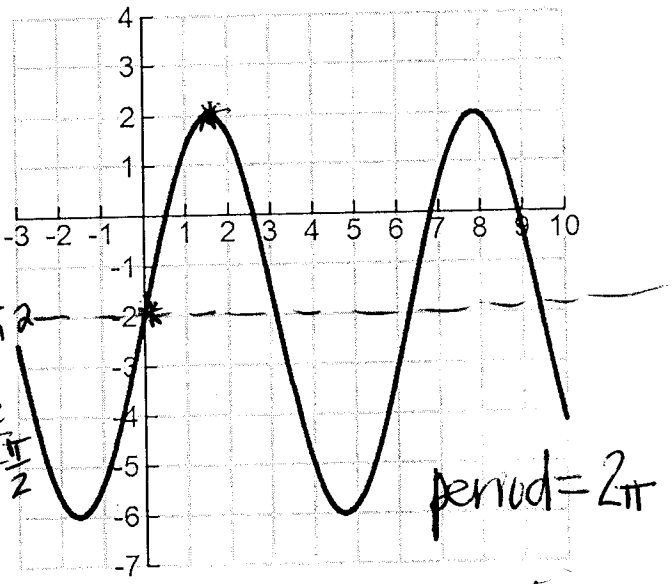
sine
rt. π
up 3

cosine
left $\frac{\pi}{2}$
up 3

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

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

22.



Sine
down 2

Cosine
right $\frac{\pi}{2}$

Sine Equation $y = 4\sin(x) - 2$

Cosine Equation $y = 4\cos\left(x - \frac{\pi}{2}\right) - 2$