

5.3 Graphs of the Sine and Cosine Functions

1. Graph each function over the interval $[-2\pi, 2\pi]$. Give the amplitude. Label each quarter period.

(a) $y = 2 \cos x$

(b) $y = \frac{2}{3} \sin x$

(c) $y = -\cos x$

(d) $y = -2 \sin x$

2. Graph each function over a two period interval. Label each quarter period. Give the period and amplitude.

(a) $y = \sin \frac{1}{2}x$

(b) $y = \cos \frac{3}{4}x$

(c) $y = \sin 3x$

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

(e) $y = -2 \cos 3x$

(f) $y = \cos \pi x$

(g) $y = -2 \sin 2\pi x$

(h) $y = \frac{1}{2} \cos \frac{\pi}{2}x$

3. Graph the function over a two period interval. Label each quarter period.

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

(b) $y = \sin \left(x + \frac{\pi}{4} \right)$

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

4. Graph the function over a one period interval. Label each quarter period.

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

(b) $y = -4 \sin (2x + \pi)$

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

5. Graph the function over a two period interval. Label each quarter period.

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

(b) $y = -1 - 2 \cos 5x$

(c) $y = 1 - 2 \cos \frac{1}{2}x$

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

6. Graph the function over a one period interval. Label each quarter period.

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

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