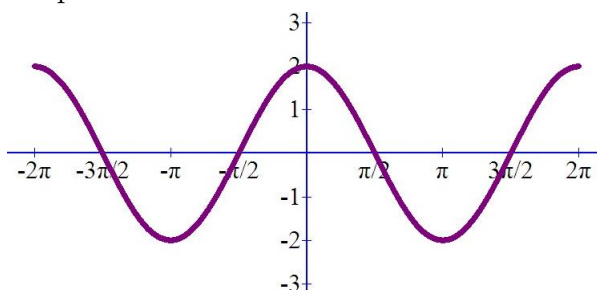


5.3 Graphs of the Sine and Cosine Functions

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

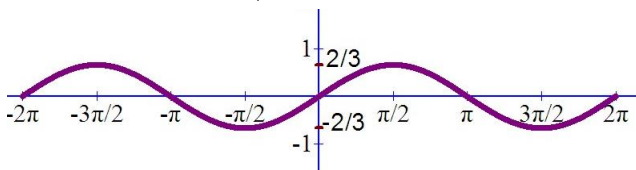
(a) $y = 2 \cos x$

Amplitude: $A = 2$



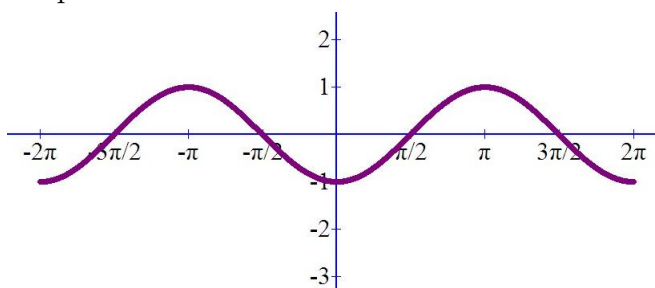
(b) $y = \frac{2}{3} \sin x$

Amplitude: $A = 2/3$



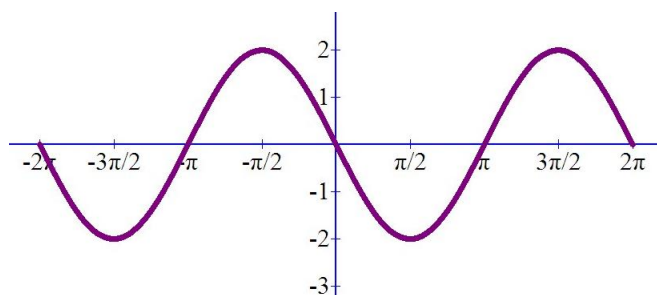
(c) $y = -\cos x$

Amplitude: $A = 1$



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

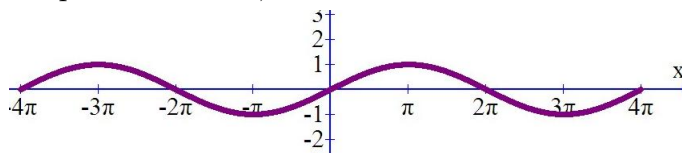
Amplitude: $A = 2$



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

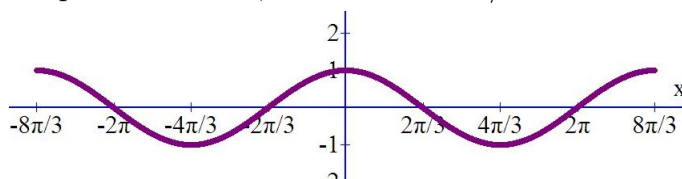
(a) $y = \sin \frac{1}{2}x$

Amplitude: $A = 1$, Period: $P = 4\pi$



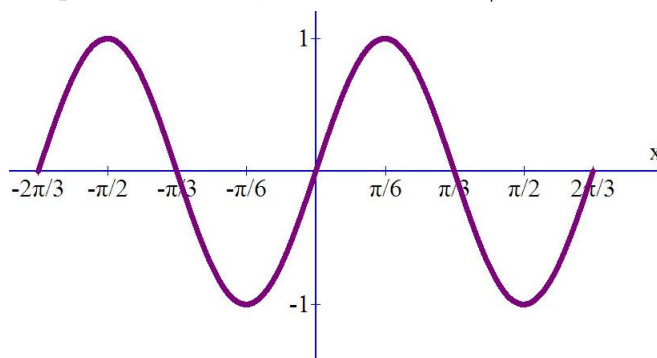
(b) $y = \cos \frac{3}{4}x$

Amplitude: $A = 1$, Period: $P = 8\pi/3$



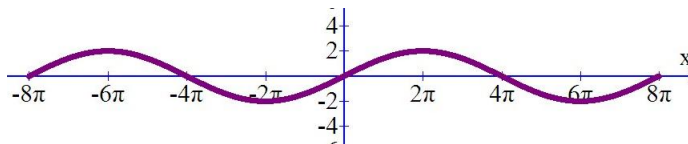
(c) $y = \sin 3x$

Amplitude: $A = 1$, Period: $P = 2\pi/3$



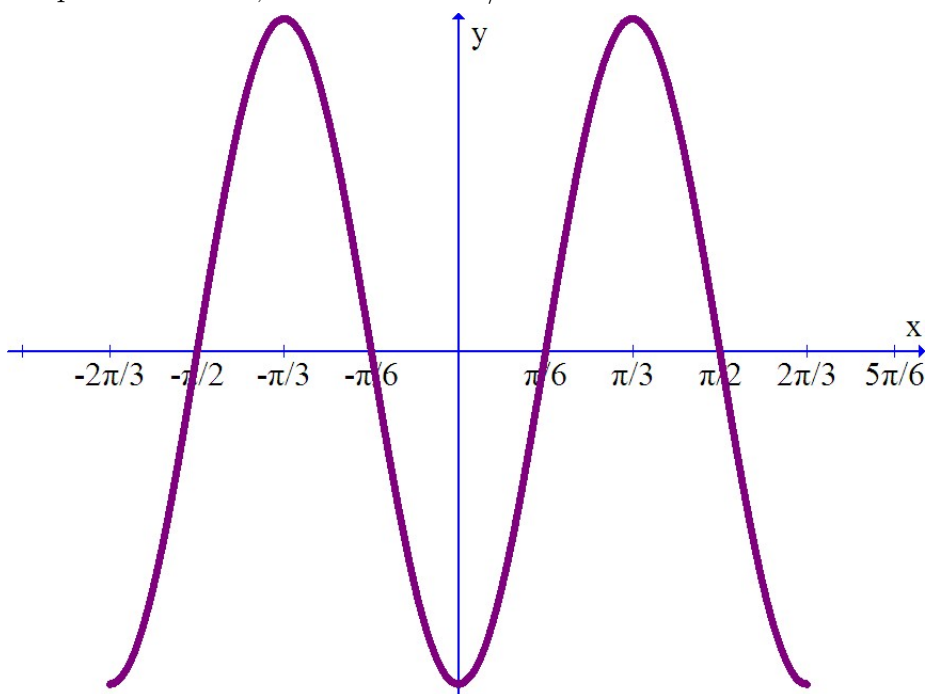
(d) $y = 2 \sin \frac{1}{4}x$

Amplitude: $A = 2$, Period: $P = 8\pi$



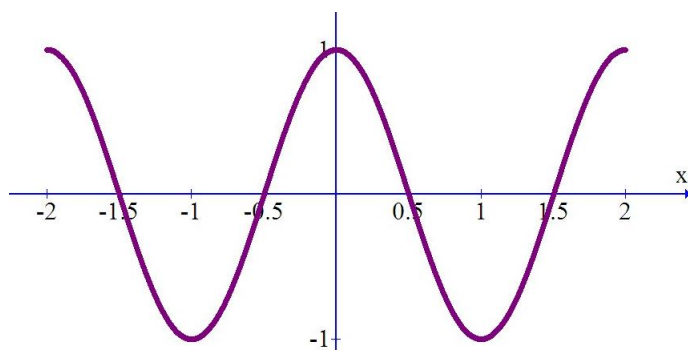
(e) $y = -2 \cos 3x$

Amplitude: $A = 2$, Period: $P = 2\pi/3$



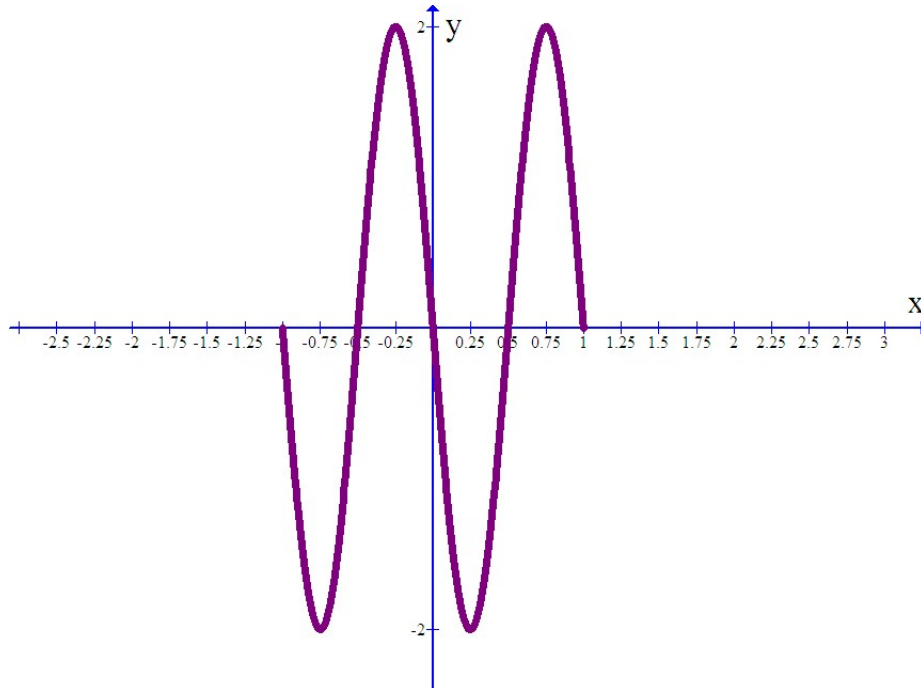
(f) $y = \cos \pi x$

Amplitude: $A = 1$, Period: $P = 2$



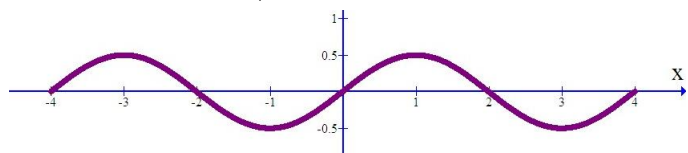
(g) $y = -2 \sin 2\pi x$

Amplitude: $A = 2$, Period: $P = 1$



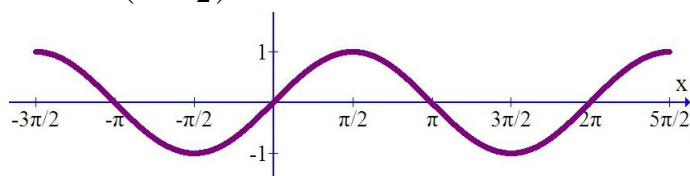
(h) $y = \frac{1}{2} \cos \frac{\pi}{2} x$

Amplitude: $A = 1/2$, Period: $P = 4$

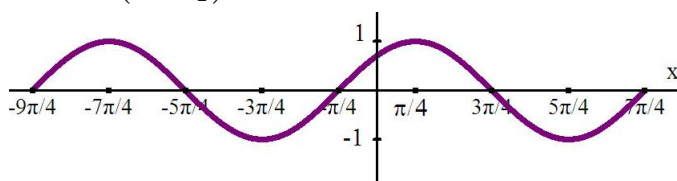


3. Graph the function over a two period interval. Label each quarter period.

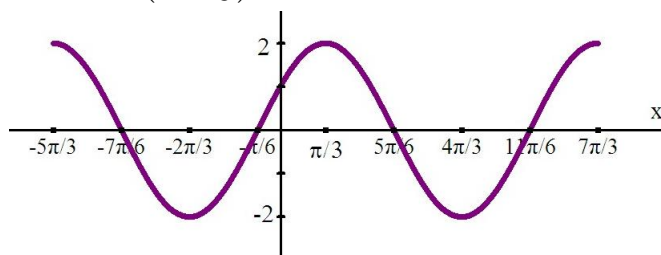
(a) $y = \cos\left(x - \frac{\pi}{2}\right)$



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

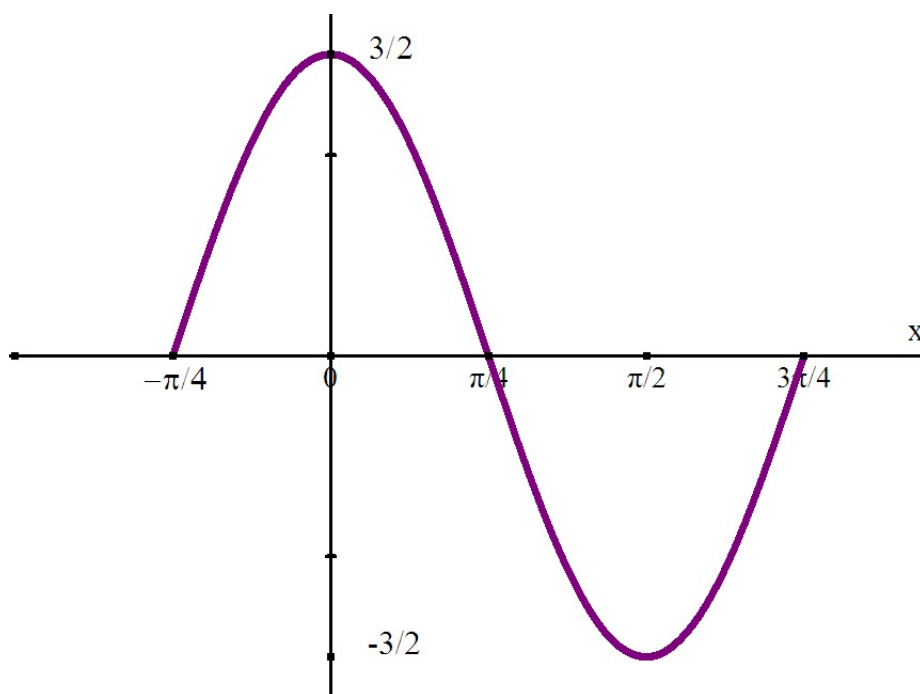


(c) $y = 2 \cos\left(x - \frac{\pi}{3}\right)$

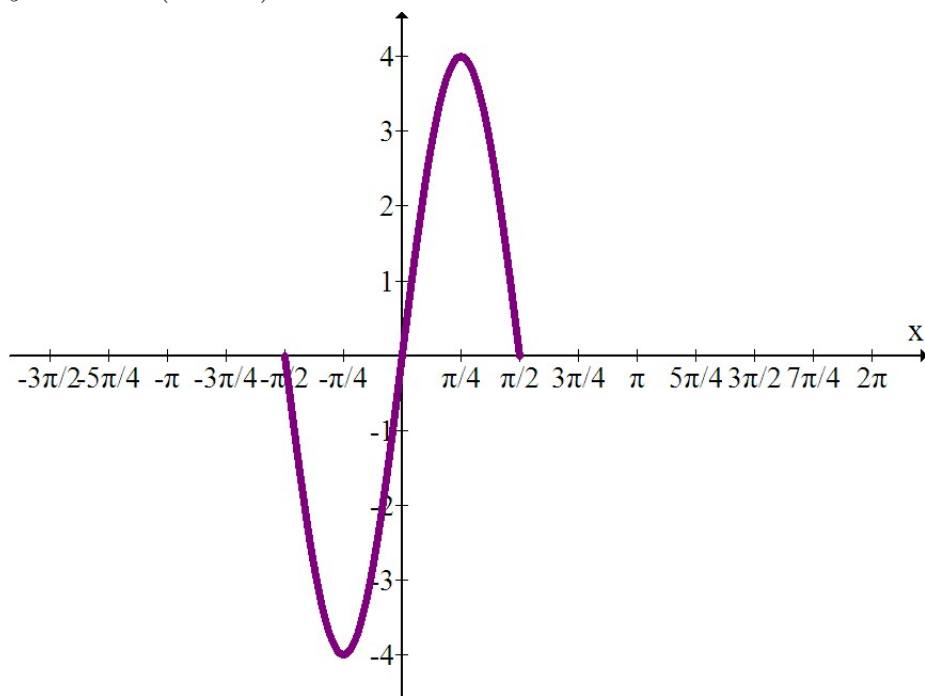


4. Graph the function over a one period interval. Label each quarter period.

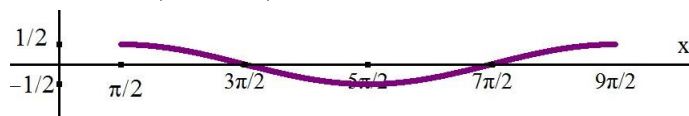
(a) $y = \frac{3}{2} \sin 2\left(x + \frac{\pi}{4}\right)$



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

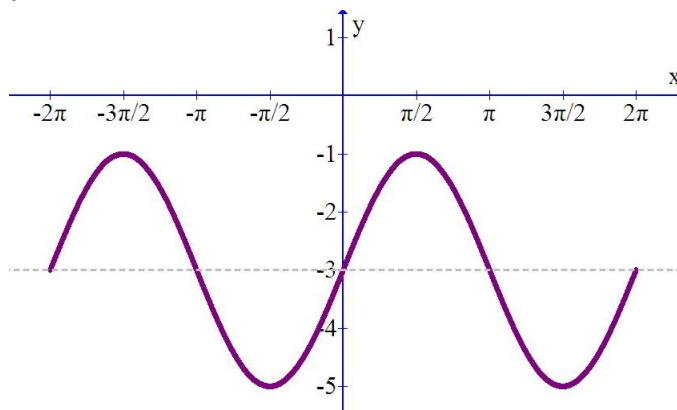


$$(c) y = \frac{1}{2} \cos\left(\frac{1}{2}x - \frac{\pi}{4}\right)$$

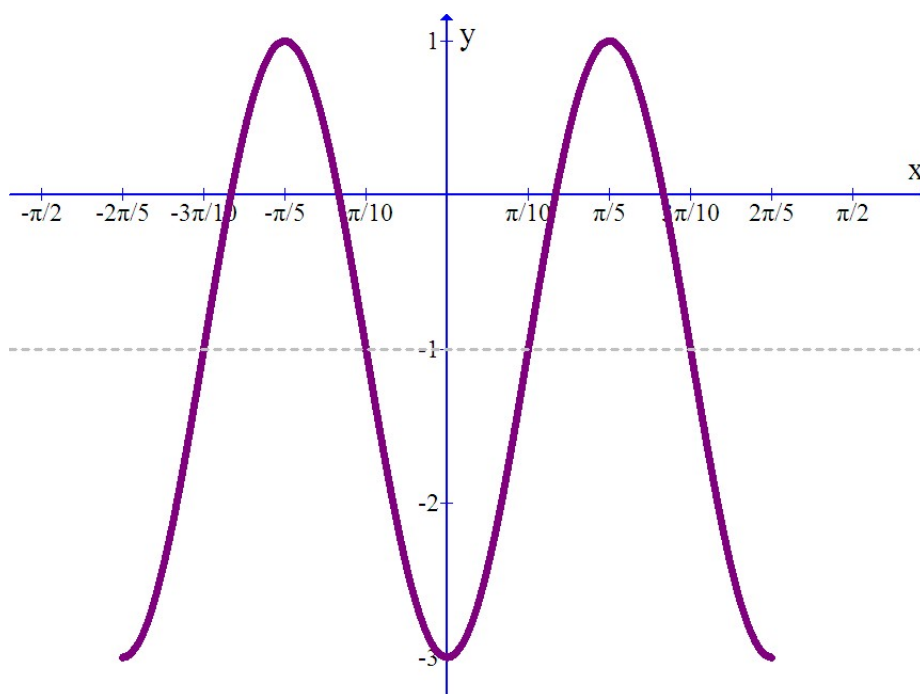


5. Graph the function over a two period interval. Label each quarter period.

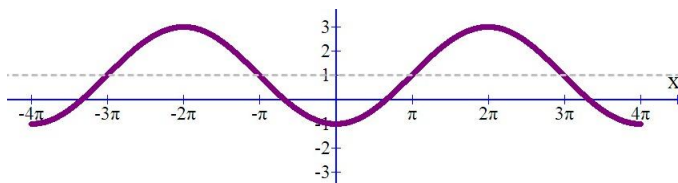
$$(a) y = -3 + 2 \sin x$$



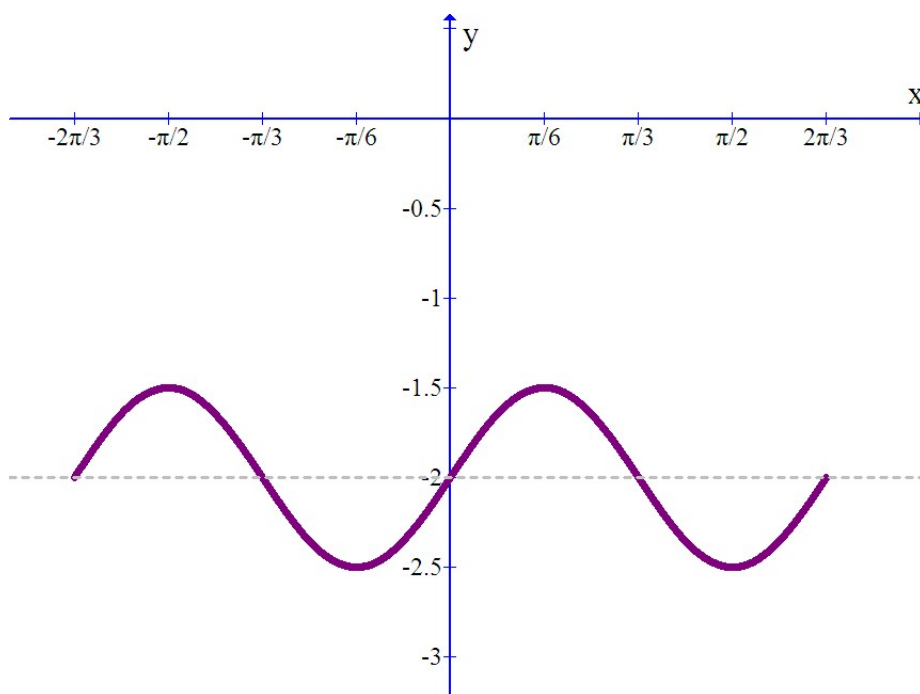
$$(b) y = -1 - 2 \cos 5x$$



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

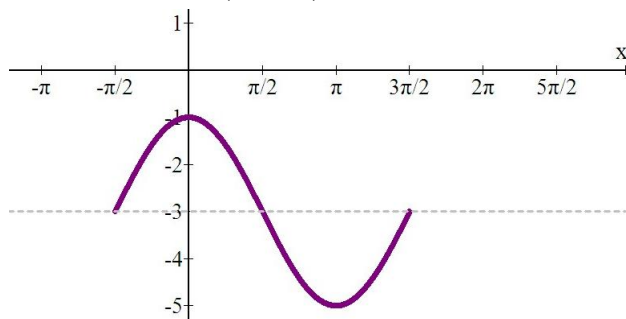


(d) $y = -2 + \frac{1}{2} \sin 3x$



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

