

Precalc

Section 4.4 Notes – Equations from graphs

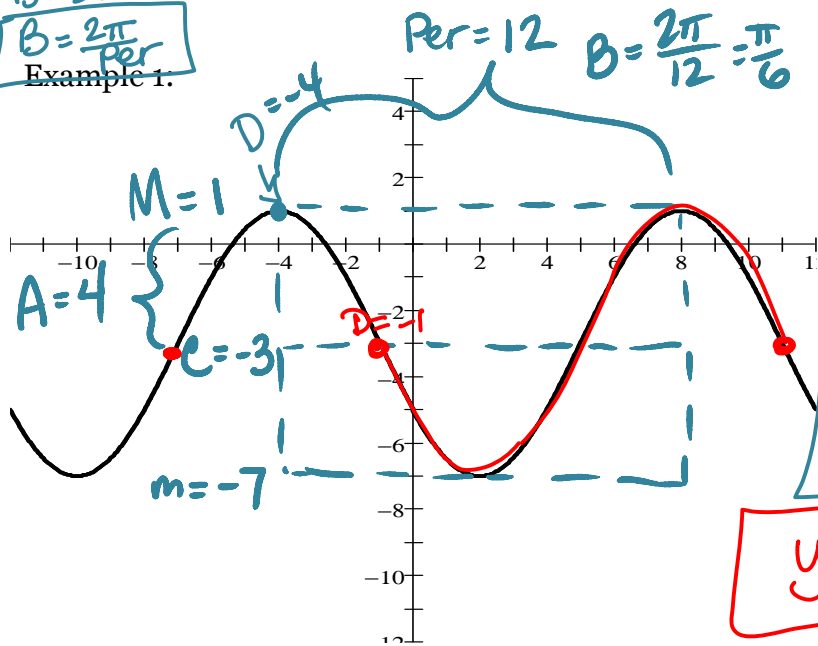
Given the graph, determine the particular equation.
Remember:

$$y = \boxed{A} \cos \text{ or } \sin \boxed{B} (x - \boxed{D}) + \boxed{C}$$

Amplitude
Start or phase shift
Sinusoidal Axis

B - value

$P = \frac{2\pi}{B}$
 $PB = 2\pi$
 $B = \frac{2\pi}{\text{Per}}$
 Example 1.



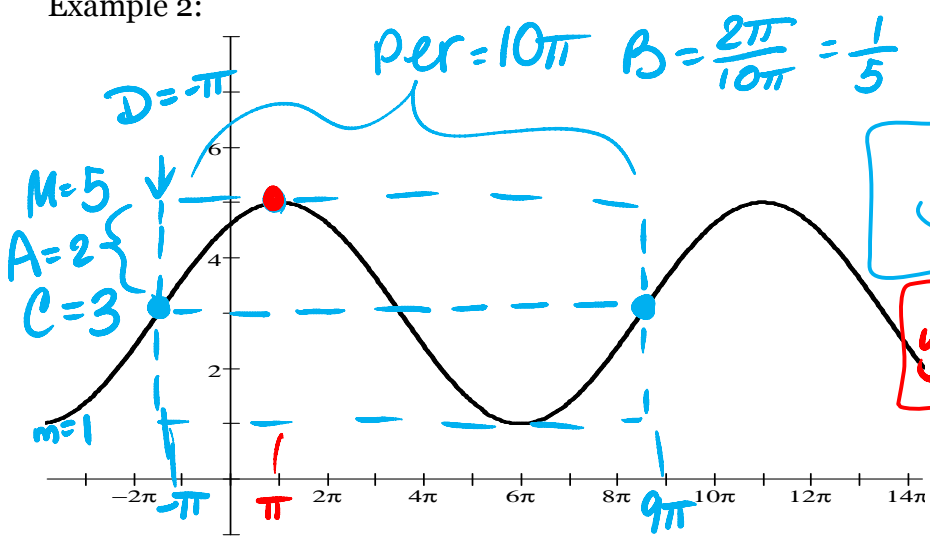
$$C = \frac{M+m}{2} = \frac{1+(-7)}{2} = -3$$

$$A = \frac{M-m}{2} = \frac{1-(-7)}{2} = 4$$

$$y = 4 \cos \frac{\pi}{6} (\theta + 4) - 3$$

$$y = -4 \sin \frac{\pi}{6} (\theta + 1) - 3$$

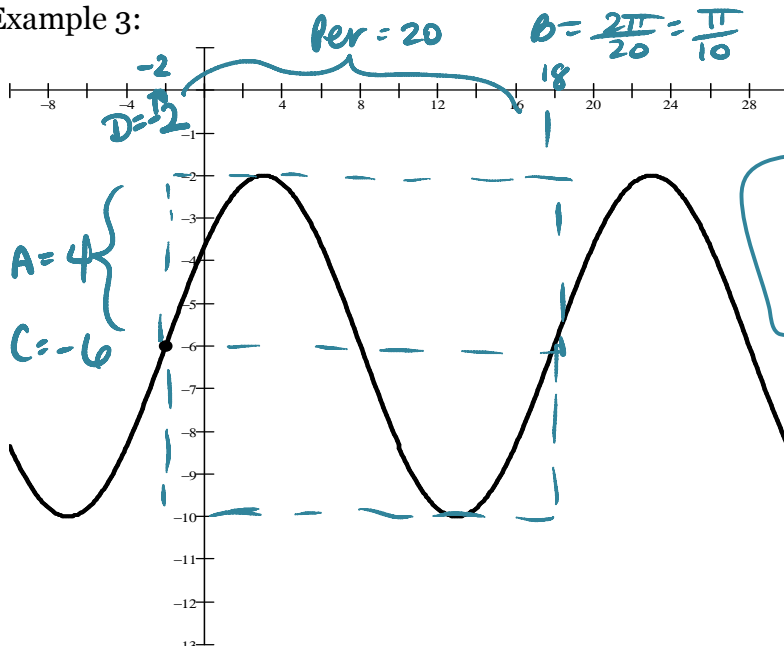
Example 2:



$$y = 2 \sin \frac{1}{5} (\theta + \pi) + 3$$

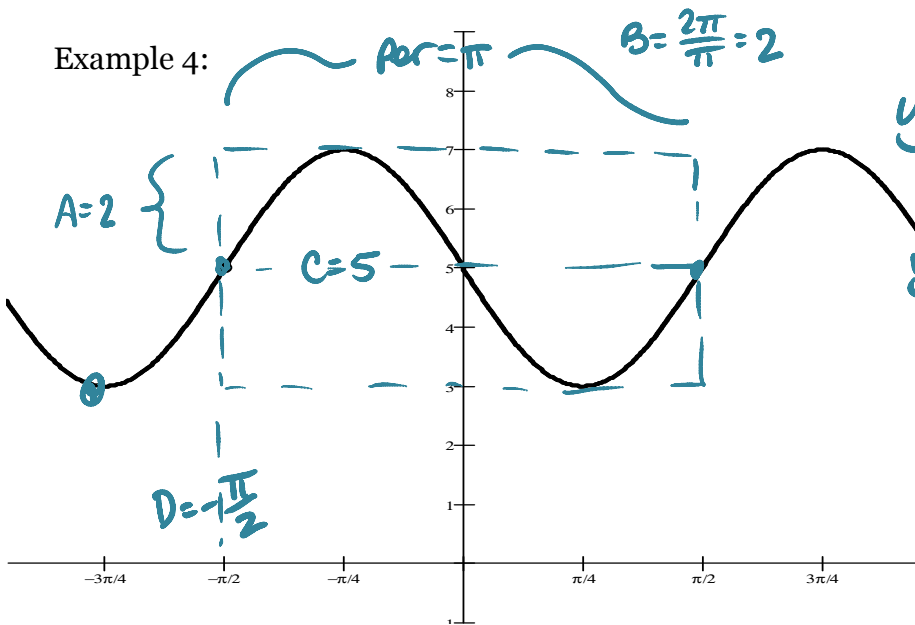
$$y = 2 \cos \frac{1}{5} (\theta - \pi) + 3$$

Example 3:



$$y = 4 \sin \frac{\pi}{10} (\theta + 2) - 6$$

Example 4:



$$y = 2 \sin 2 \left(\theta + \frac{\pi}{2} \right) + 5$$

$$y = -2 \cos 2 \left(\theta + \frac{3\pi}{4} \right) + 5$$