

1) Write an equation for the function below in terms of sine.

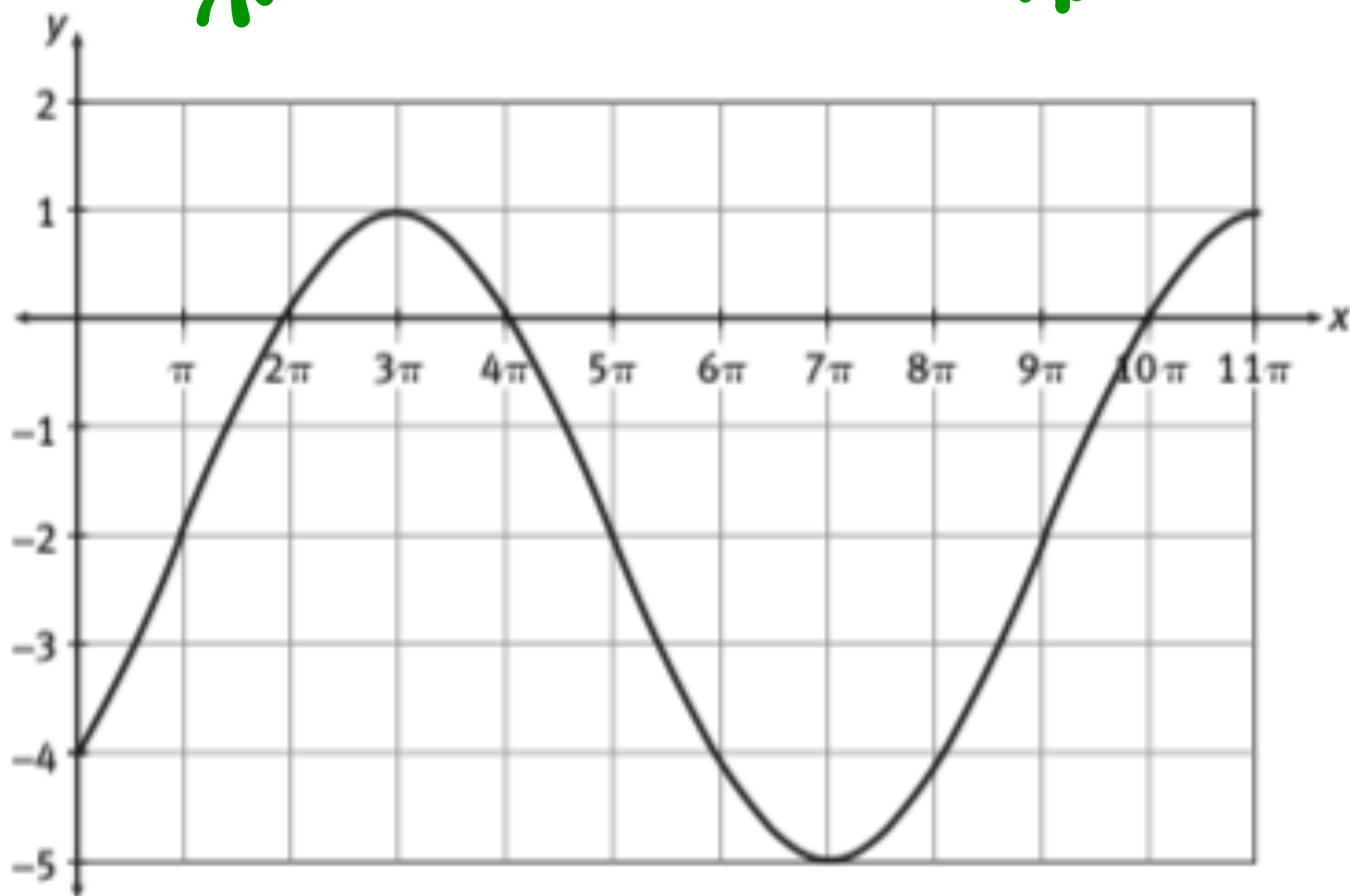
* $y = 3 \sin\left[\frac{1}{4}(x - \pi)\right] - 2$ *

$$P = \frac{2\pi}{B}$$

$$B \cdot 8\pi = \frac{2\pi}{B} \quad (B)$$

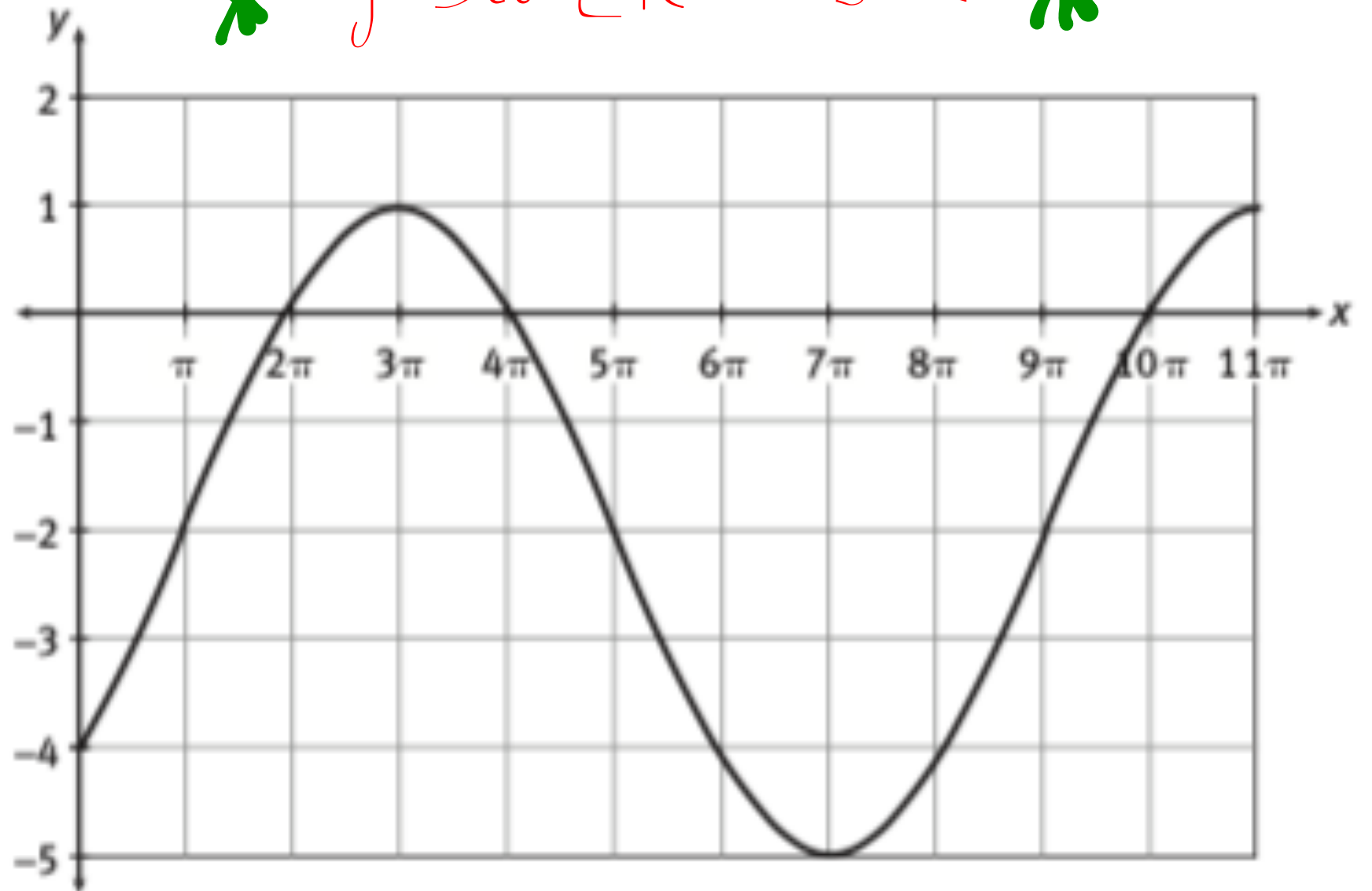
$$\frac{B \cdot 8\pi}{8\pi} = \frac{2\pi}{8\pi}$$

$$B = \frac{1}{4}$$



2) Write an equation for the function below in terms of cosine.

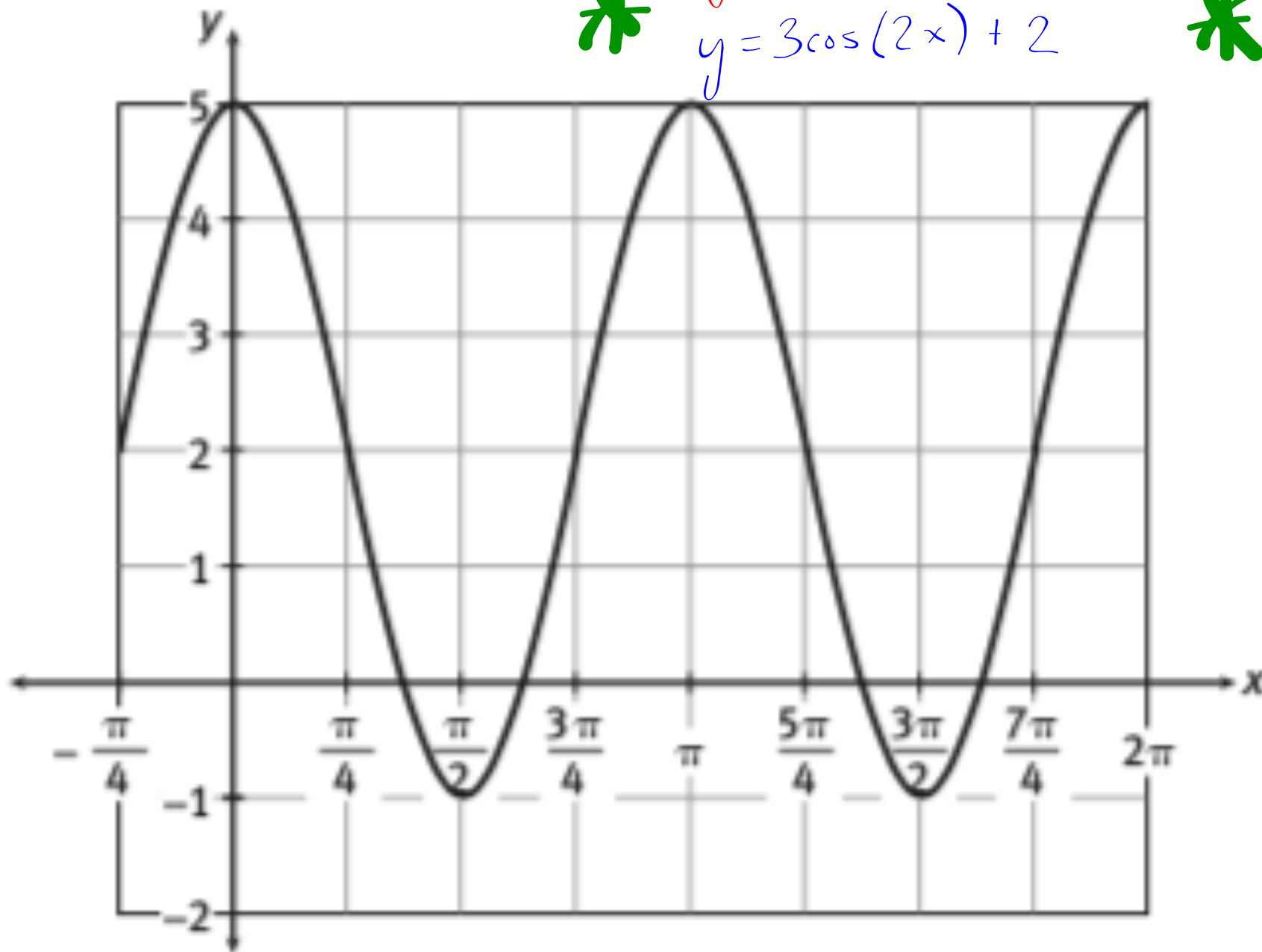
* $y = 3 \cos \left[\frac{1}{4}(x - 3\pi) \right] - 2$ *



4) Write two equations for the function below, one in terms of sine and the other in terms of cosine.

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

$$y = 3 \cos(2x) + 2$$



$$P = \frac{2\pi}{B};$$

$$B\pi = \frac{2\pi}{B} (B)$$

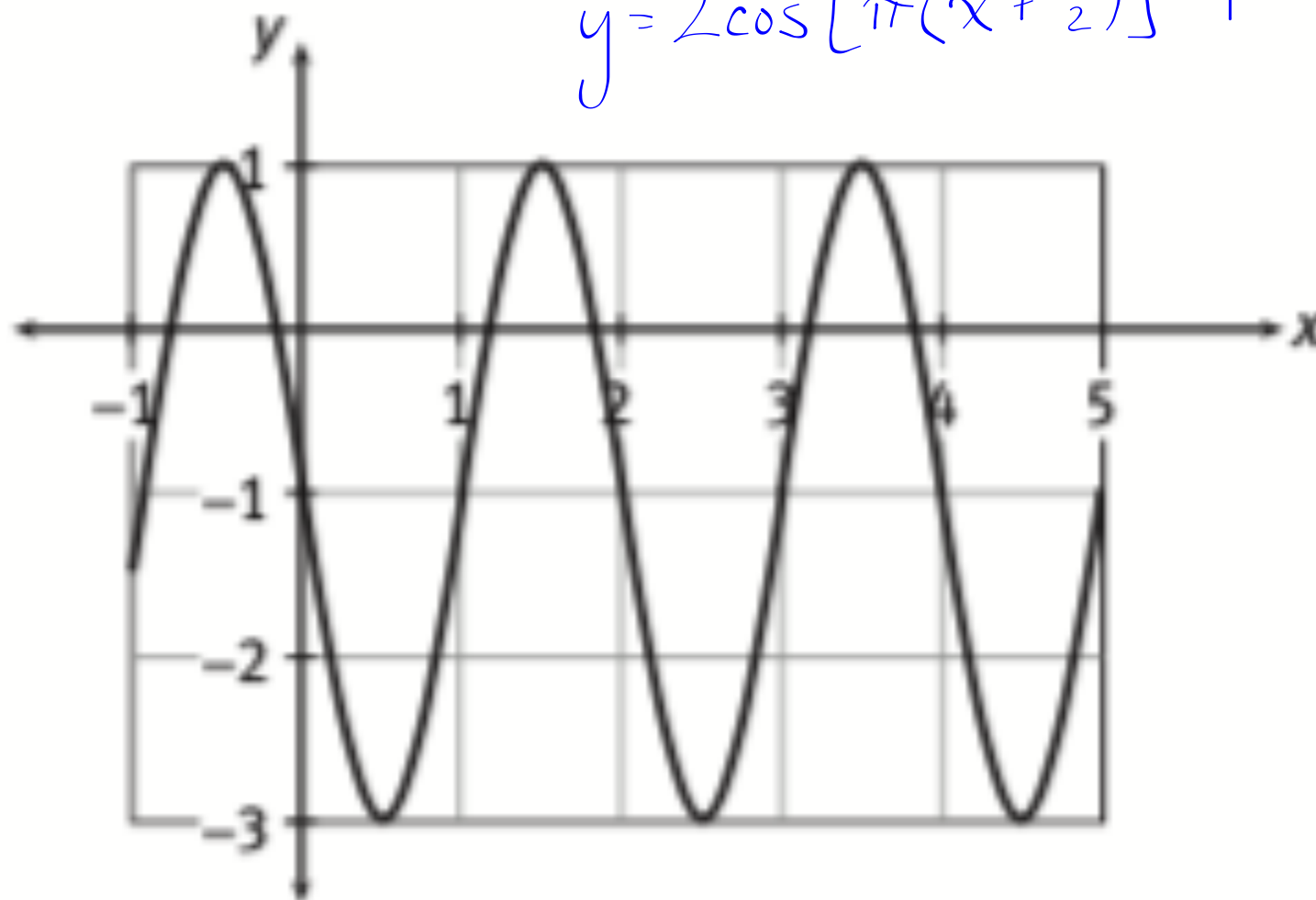
$$\frac{B\pi}{\pi} = \frac{2\pi}{\pi}$$

$$B = 2$$

5) Write two equations for the function below, one in terms of sine and the other in terms of cosine.

$$y = 2 \sin[\pi(x - 1)] - 1$$

$$y = 2 \cos[\pi(x + \frac{1}{2})] - 1$$



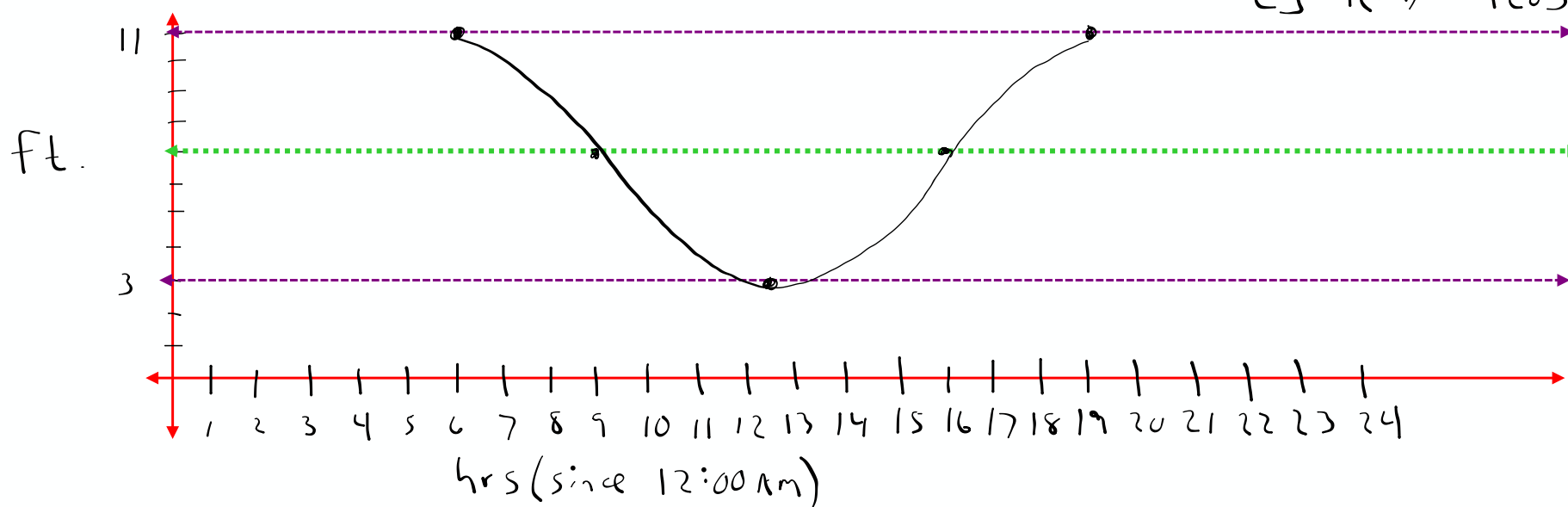
$$P = \frac{2\pi}{B}$$

$$B = \frac{2\pi}{P}$$

$$\frac{2\pi}{2} = \frac{2\pi}{2} \quad B = \pi$$

Suppose that the depth of the water at a popular surfing spot varies from 3 ft to 11 ft, depending on the time. Suppose that on Monday, high tide occurred at 6:00 a.m. and the next high tide occurred at 7:00 p.m.

- Draw a graph to model the depth of water as a function of time t in hours since midnight on Monday morning.
- Write an equation for the graph.
- Use the equation in Item 6(b) to predict the depth of the water at 2 p.m., correct to three decimal places.
- Reason quantitatively.** Describe how the parameters of the equation that models this situation change if the depth of the water is measured in meters instead of feet.



$$b] h(t) = 4 \cos \left[\frac{2\pi}{13}(t-6) \right] + 7$$

$$c] h(14) = 4 \cos \left[\frac{2\pi}{13}((14)-6) \right] + 7$$

$$h(14) \approx 4.006 \text{ Ft.}$$

$$d] A = 1.231$$

$$D = 2.154$$

$$P = \frac{2\pi}{B}$$

$$B = \frac{2\pi}{13}$$

$$\frac{13B}{13} = \frac{2\pi}{13} \quad B = \frac{2\pi}{13}$$

Lesson 17-2 Practice

Due Tuesday 02/04