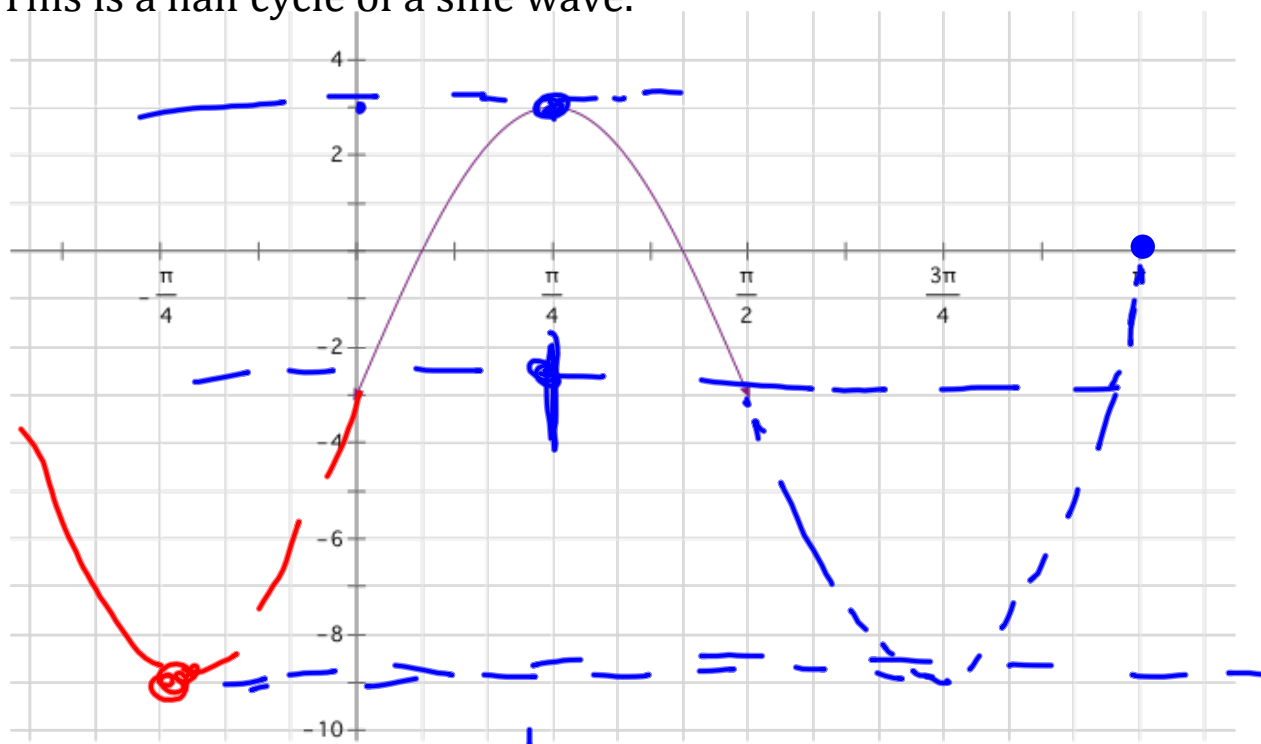


Chapter 12
Board Review

4/28/17

This is a half cycle of a sine wave.



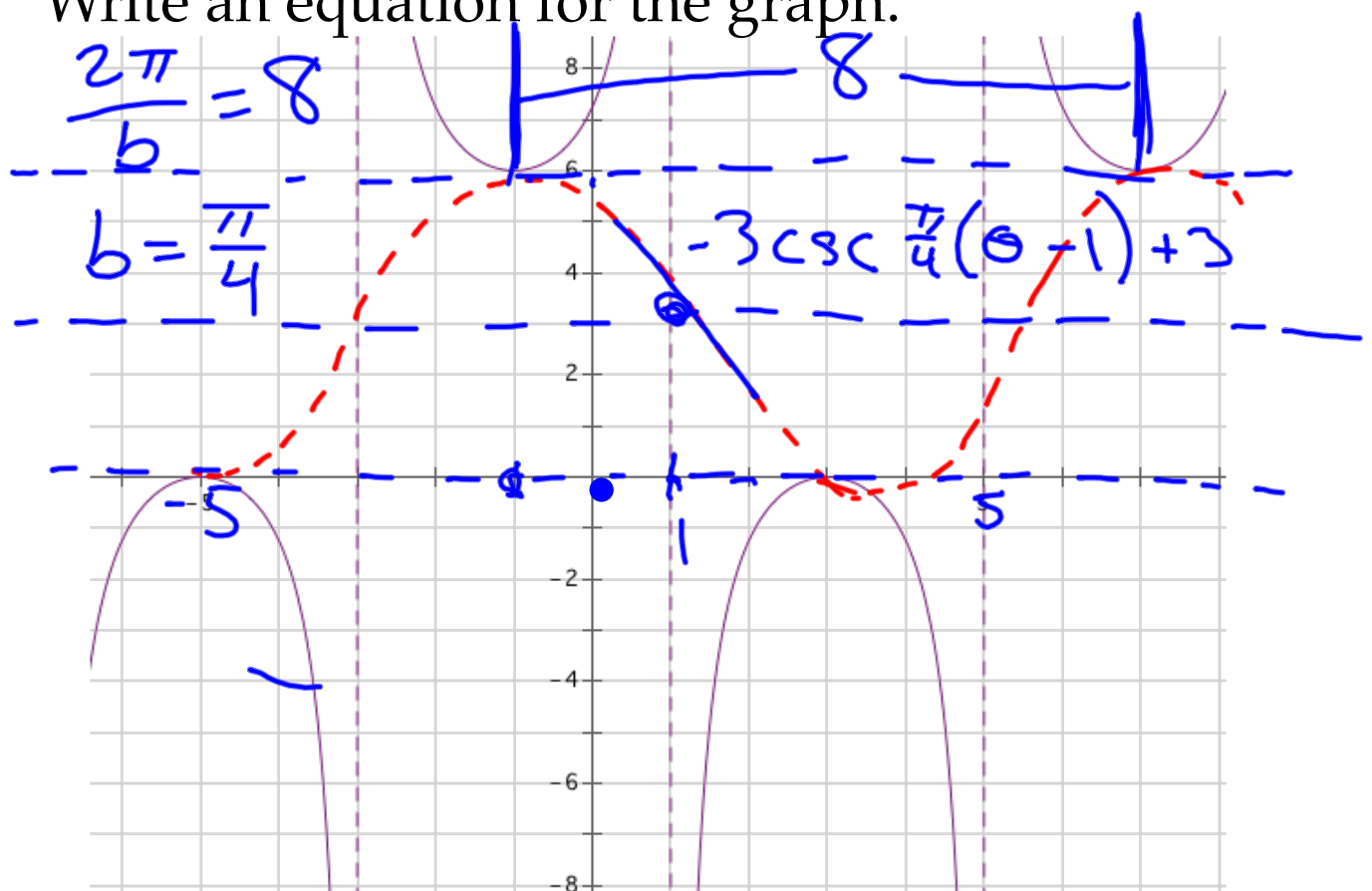
Write two different equations for this curve.

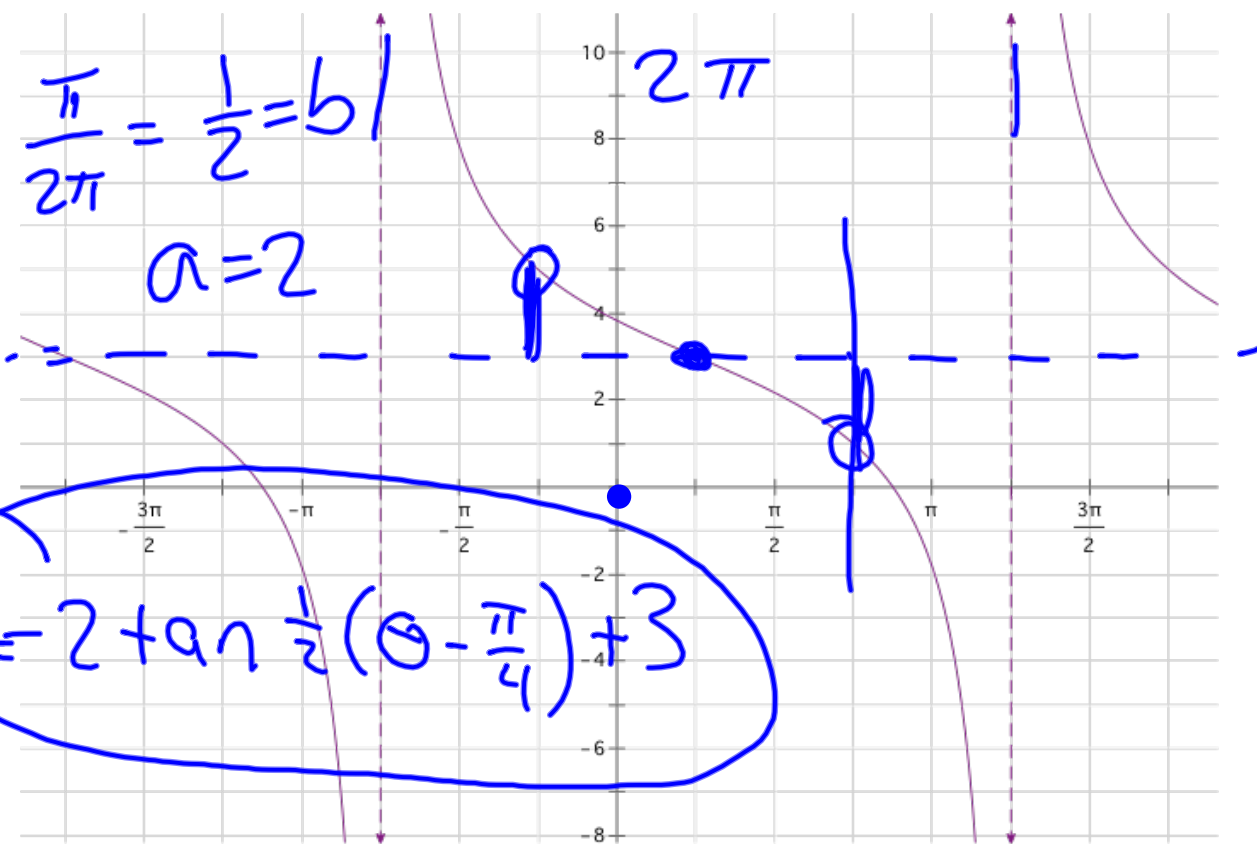
Write an equation for the graph.

$$\frac{2\pi}{b} = 8$$

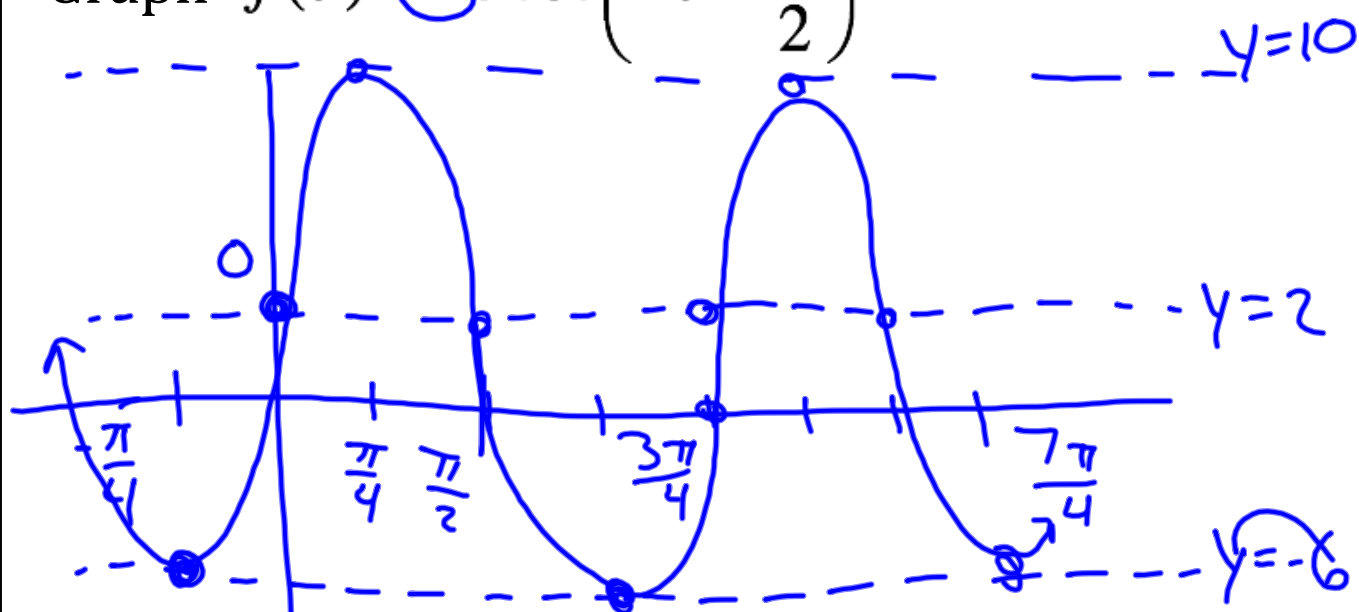
$$b = \frac{\pi}{4}$$

$$-3 \csc \frac{\pi}{4} (\theta - 1) + 3$$





Graph $f(\theta) = -8 \cos\left(2\left(\theta + \frac{\pi}{4}\right)\right) + 2$



Graph.

$$f(\theta) = -3 \tan\left(\frac{\pi}{4}\theta - \frac{\pi}{2}\right) - 1$$

Evaluate with great speed!

$$\sin\left(\frac{5\pi}{3}\right) \quad \csc\left(\frac{10\pi}{3}\right) \quad \tan\left(\frac{3\pi}{2}\right) \quad \cot(\pi)$$

Evaluate with great speed!

$$\text{Csc}^{-1}\left(-\frac{2}{\sqrt{3}}\right)$$

$$\text{Cos}^{-1}\left(-\frac{1}{2}\right)$$

$$\text{Tan}^{-1}\left(-\sqrt{3}\right)$$

$$\text{Sin}^{-1}(1)$$

The data describes the average temperature in Antarctica.

max: -18 min: -76 mid: -47

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Avg. Temp (F)	-18.8	-41.6	-65.2	-71.1	-70.6	-72.4	-75.5	-76	-74.9	-60.0	-39.9	-17.5

Write a sinusoidal equation to approximately model the temperature changes in Antarctica.

$f(t) = 29 \cos \frac{\pi}{6}(t) - 47$
 Amp: 29 period: 12 months
 $\frac{2\pi}{12} = b$ $b = \frac{\pi}{6}$

One complete push-up takes 3 seconds. A student starts the push-up at 20 inches above the ground and finishes the pushup at 3 inches above the ground. Write a cosine / sine equation modeling this.

$$8.5 \cos \frac{2\pi}{3}(\theta) + 3$$

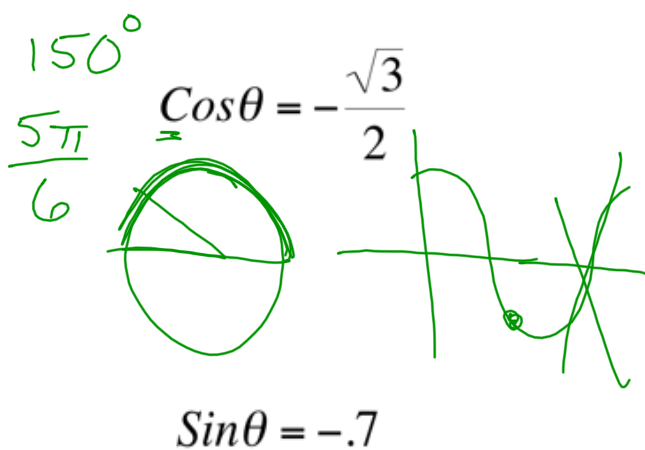
period: 3 sec

$$\frac{2\pi}{b} = 3 \text{ so } b = \frac{2\pi}{3}$$

Max: 20 mid: 11.5

Min: 3 Amp: 8.5

Solve. Use a unit circle AND a parent graph to display your solution(s).



$$\sec\theta = -2$$

$$\tan\theta = -\frac{\sqrt{3}}{3}$$

Simplify completely. Use a unit circle OR a parent graph to show your work.

$$\cos\left(\sin^{-1}\left(-\frac{3}{4}\right)\right)$$

$$\sec\left(\tan^{-1}(-\sqrt{3})\right)$$

$$\cos^{-1}\left(\sin\frac{7\pi}{4}\right)$$

$$\csc\left(\sec^{-1}2\right)$$

