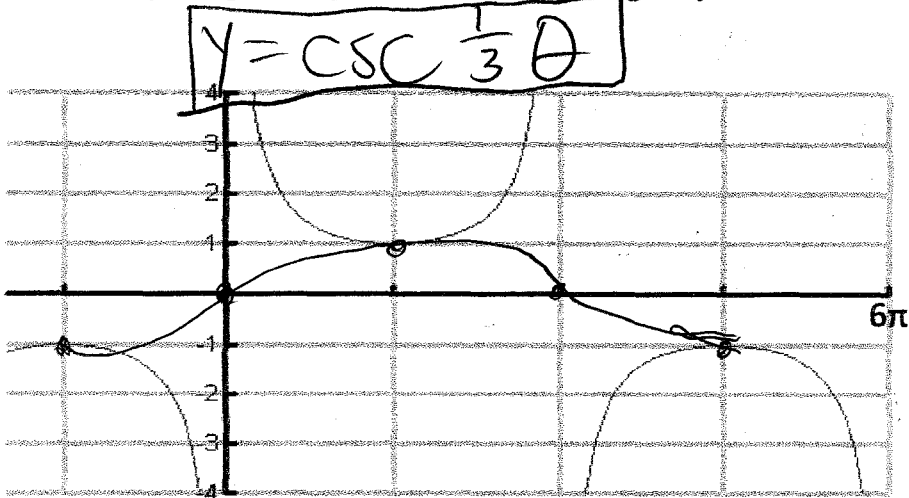


## Analyzing Graphs and Writing Equations

1.

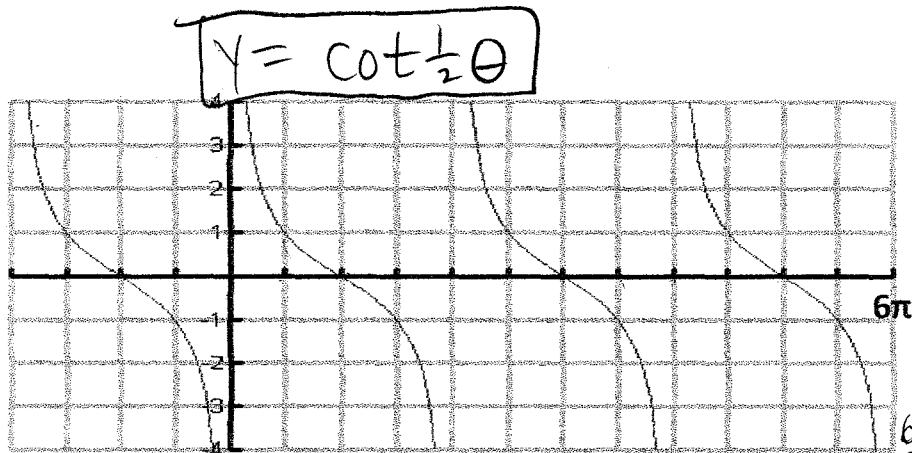


$$\text{Period} = 6\pi$$

$$\frac{2\pi}{k} = 6\pi$$

$$k = \frac{1}{3}$$

2.



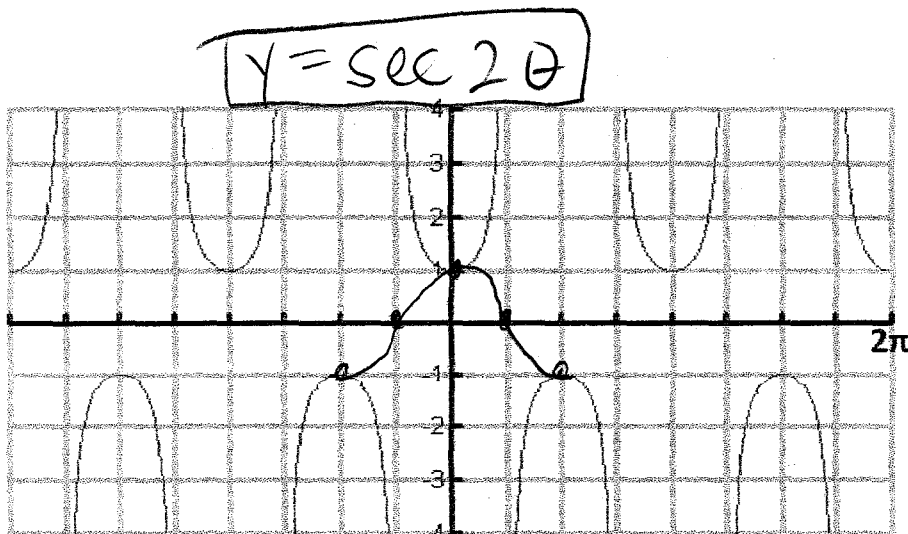
$$\text{Period} = 2\pi$$

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

$$k = \frac{1}{2}$$

$$\frac{6\pi}{12} = \frac{\pi}{2}$$

3.

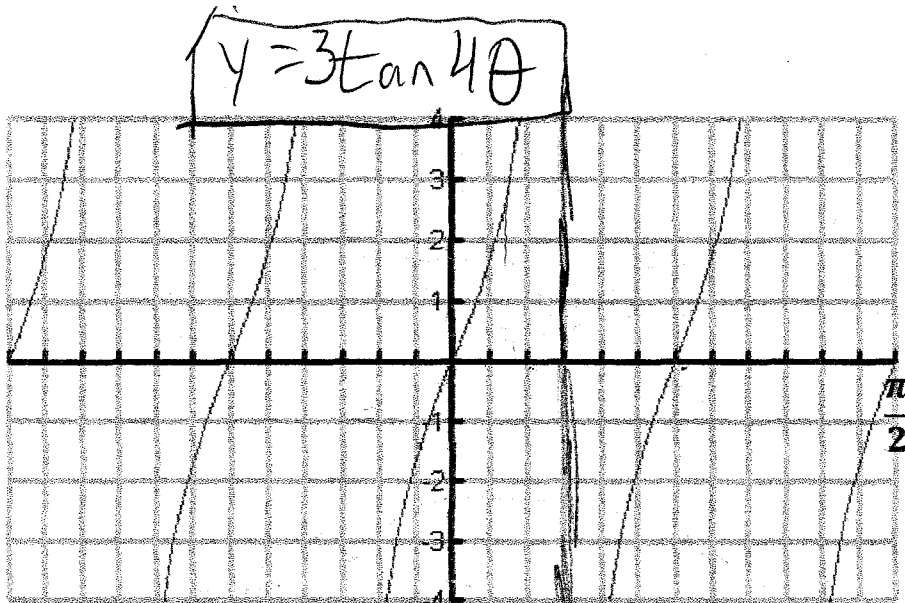


$$\text{Period} = \pi$$

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

$$k = 2$$

4.

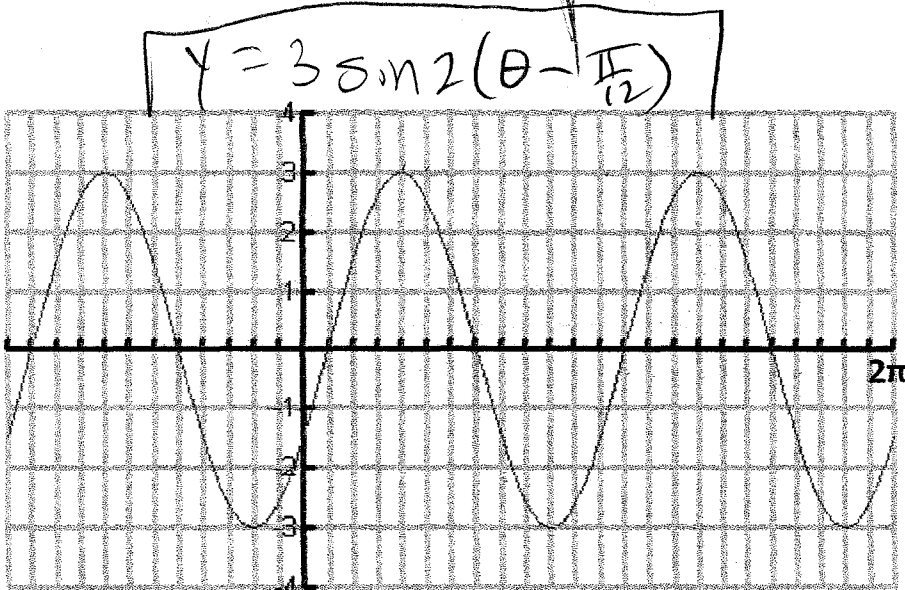


$$\text{Period} = \frac{\pi}{4}$$

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

$$k = 4$$

5.



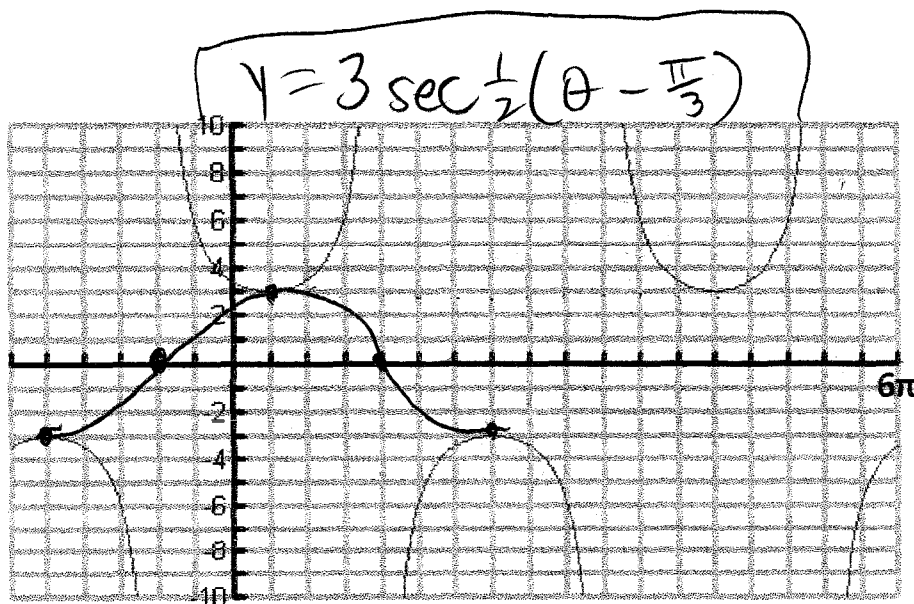
$$\text{Period} = \pi$$

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

$$k = 2$$

$$\frac{2\pi}{24} = \frac{\pi}{12}$$

6.



$$\text{Period} = 4\pi$$

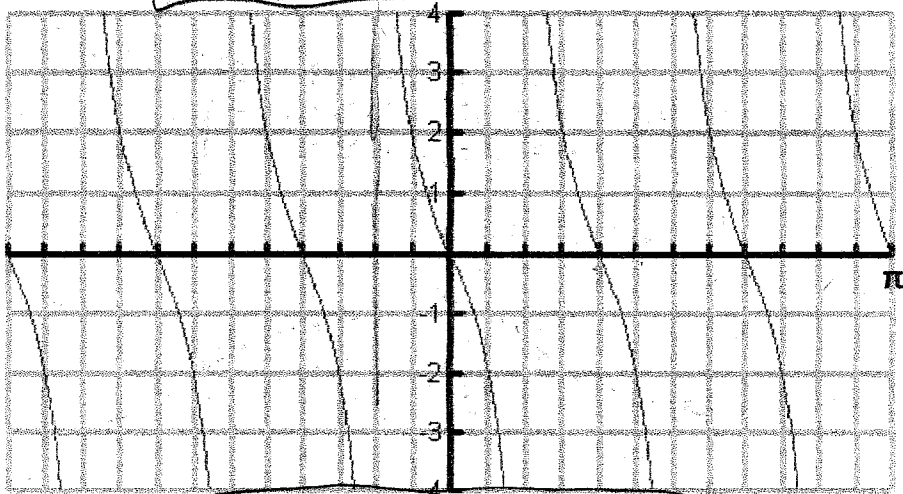
$$\frac{2\pi}{k} = 4\pi$$

$$k = \frac{1}{2}$$

$$\frac{6\pi}{18} = \frac{\pi}{3}$$

7.

$$y = 2 \cot 3\theta$$



Period =  $\frac{\pi}{3}$

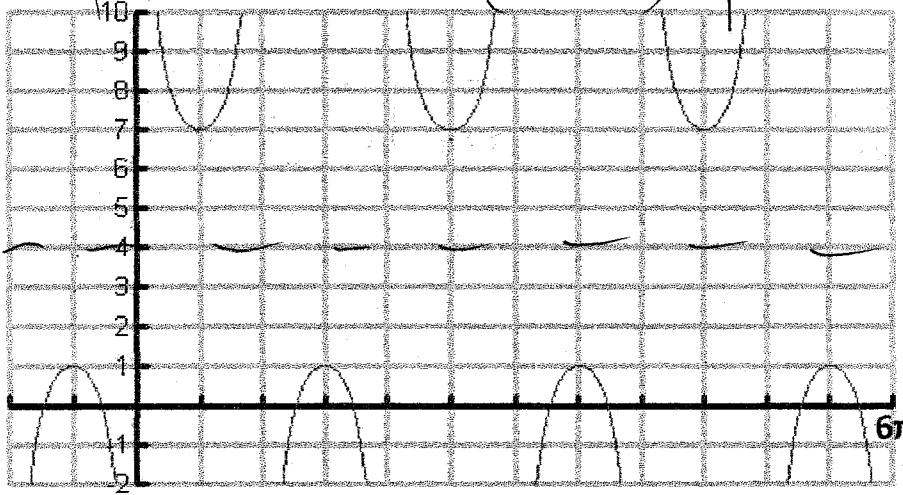
$$\frac{\pi}{k} = \frac{\pi}{3}$$

$$k = 3$$

$$\frac{\pi}{12}$$

8.

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



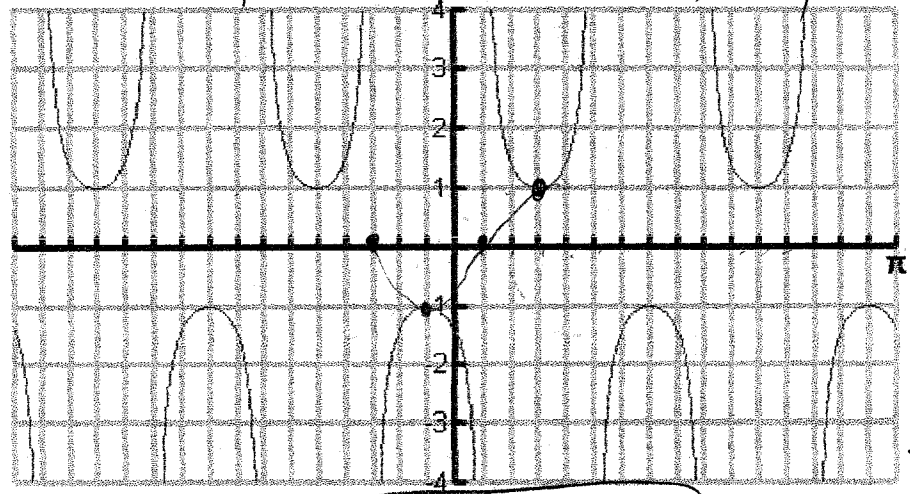
Period =  $2\pi$

$$k = 1$$

$$\frac{6\pi}{12} = \frac{\pi}{2}$$

9.

$$y = \sec 4\left(\theta - \frac{3\pi}{16}\right)$$



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

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

$$k = 4$$

$$\frac{\pi}{16}$$

or  $y = \csc 4\left(\theta - \frac{\pi}{16}\right)$