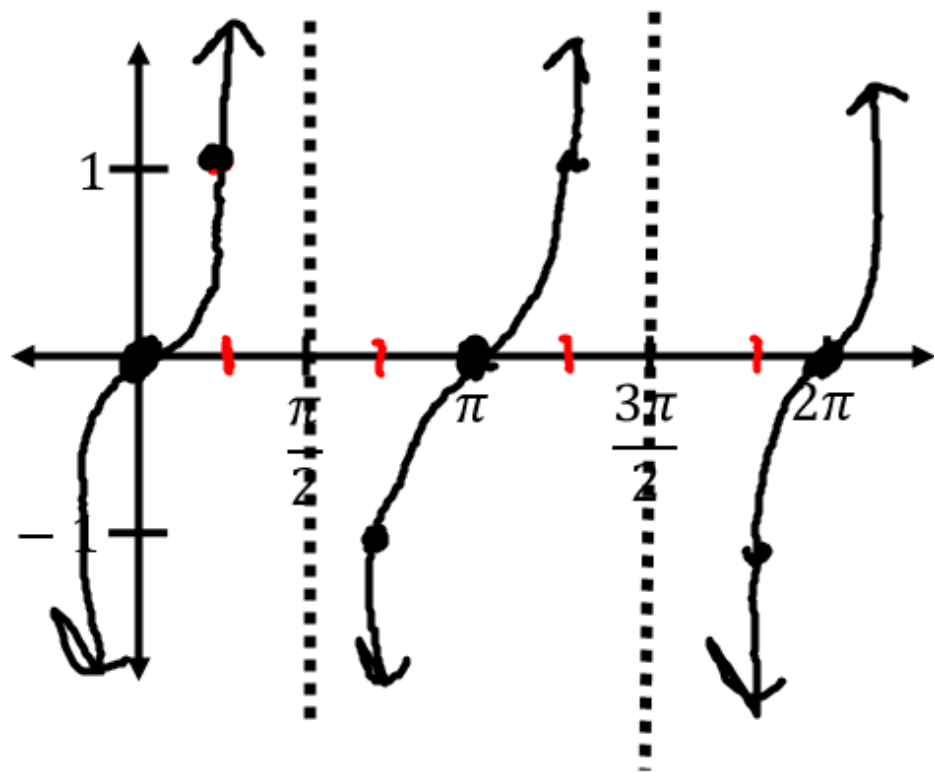


Lesson 12.3: Graphing Tangent

$$y = \tan(x)$$



Mid: $y = 0$

Amp: None

Period: π

$$y = a \cdot \tan(bx) + k$$

a = vertical stretch

k = midline

★ Period = $\frac{\pi}{b}$

Identify the midline and period of the following.

$$y = 2 \tan(\underline{6x}) \underline{-1}$$

Mid: -1

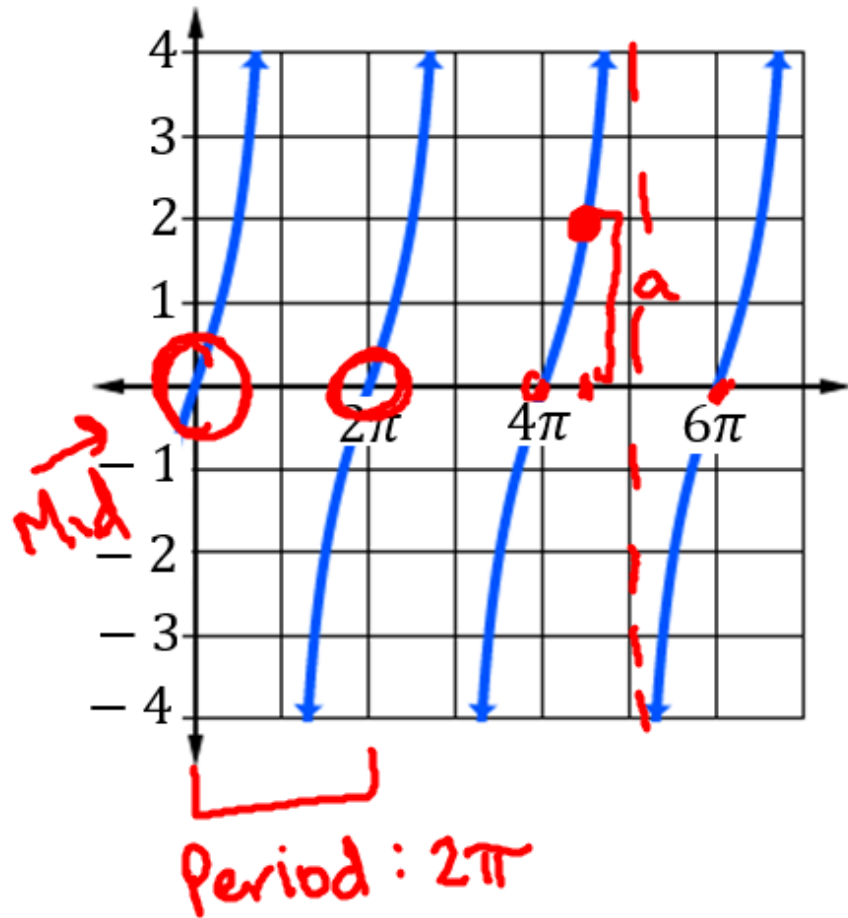
Per: $\frac{\pi}{6}$

$$y = -\tan\left(\frac{x}{\underline{5}}\right) \underline{\quad}$$

Mid: 0

Per: $\frac{\pi}{\frac{1}{5}} = 5\pi$

Write the equation for the following graph.



$$y = a \cdot \tan(bx) + k$$

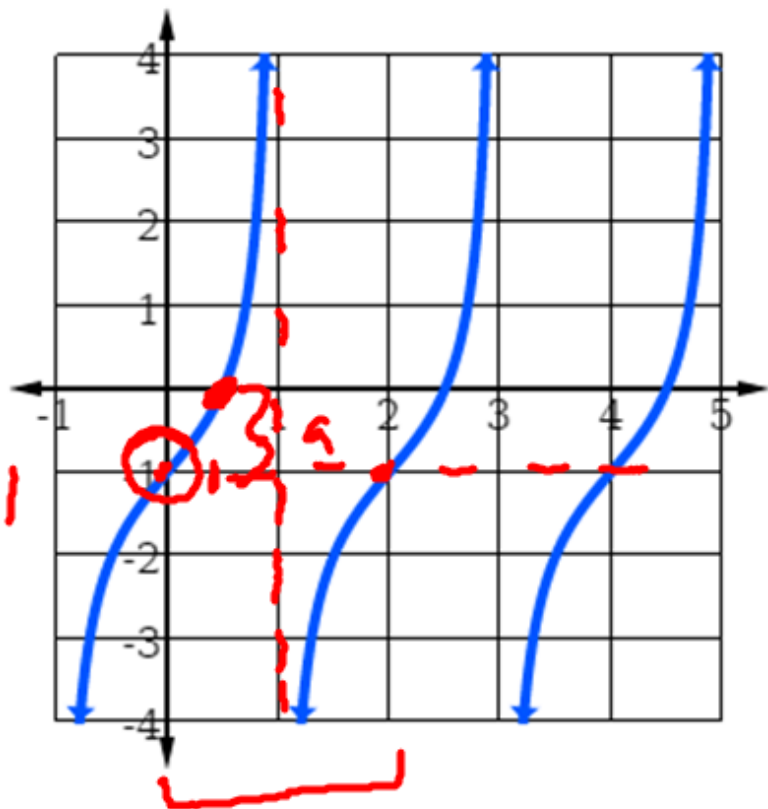
$\sqrt{\pi} = 2$ $\text{Mid} = 0$

$$y = 2 \tan\left(\frac{1}{2}x\right)$$

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

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

Write the equation for the following graph.



Mid = -1

Period = 2

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

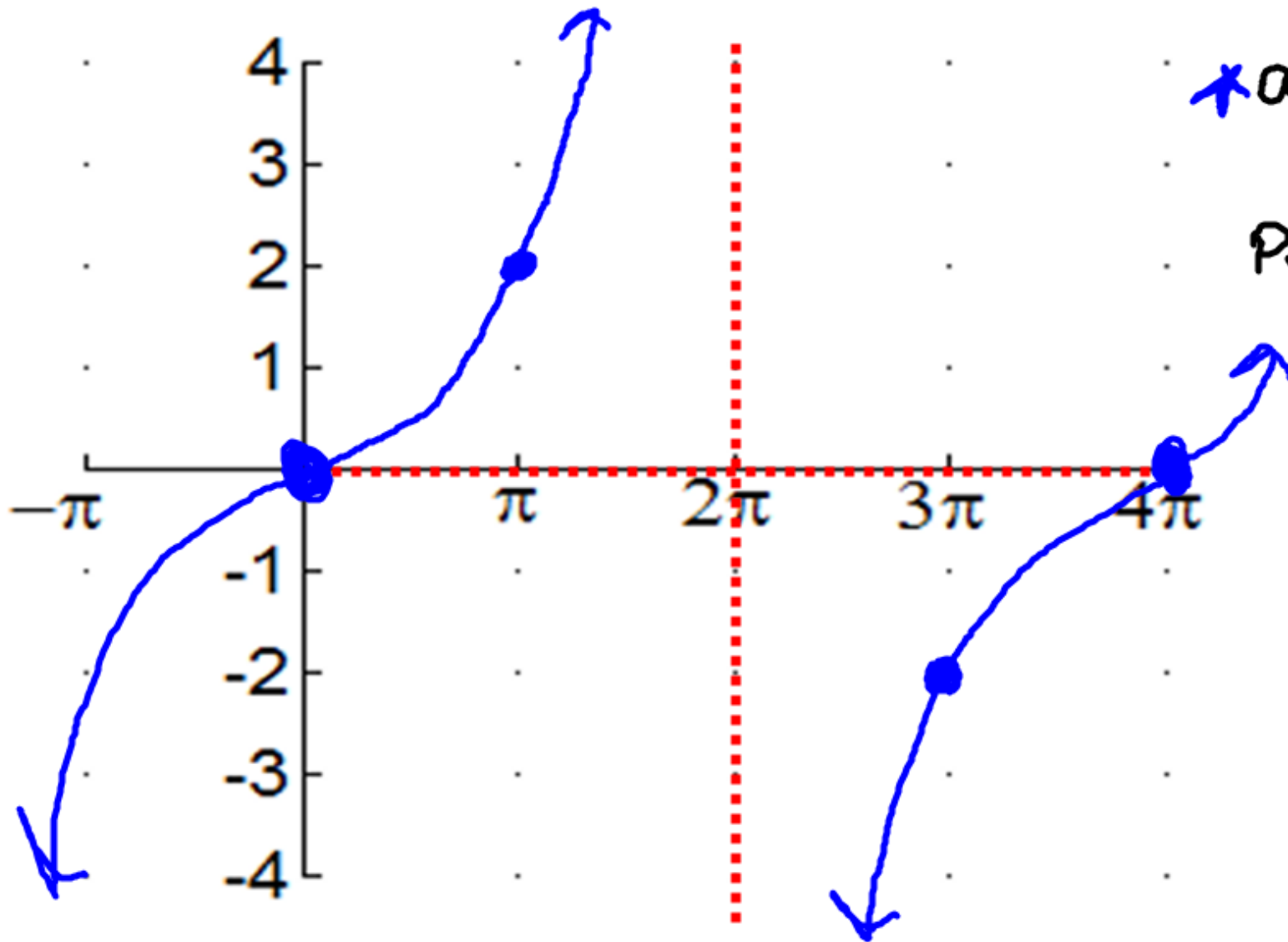
$$\pi = 2b$$
$$b = \frac{\pi}{2}$$

$$y = a \cdot \tan(bx) + k$$

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

Graph.

$$y = 2 \tan\left(\frac{x}{4}\right)$$



Mid: 0

*a: 2

Per: $\frac{T}{\frac{1}{4}} = 4\pi$

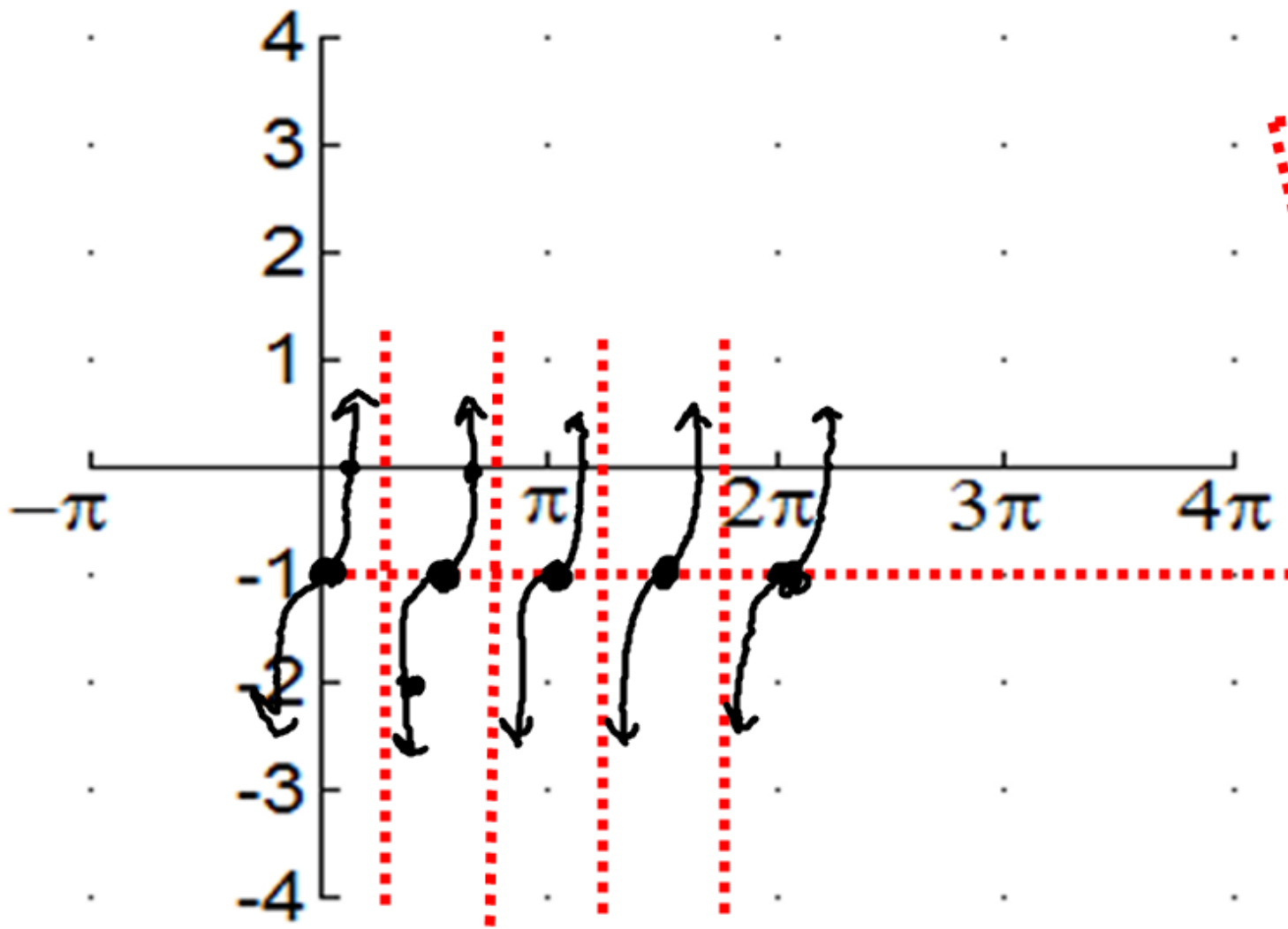
Graph.

$$y = \tan(2x) - 1$$

Mid: -1

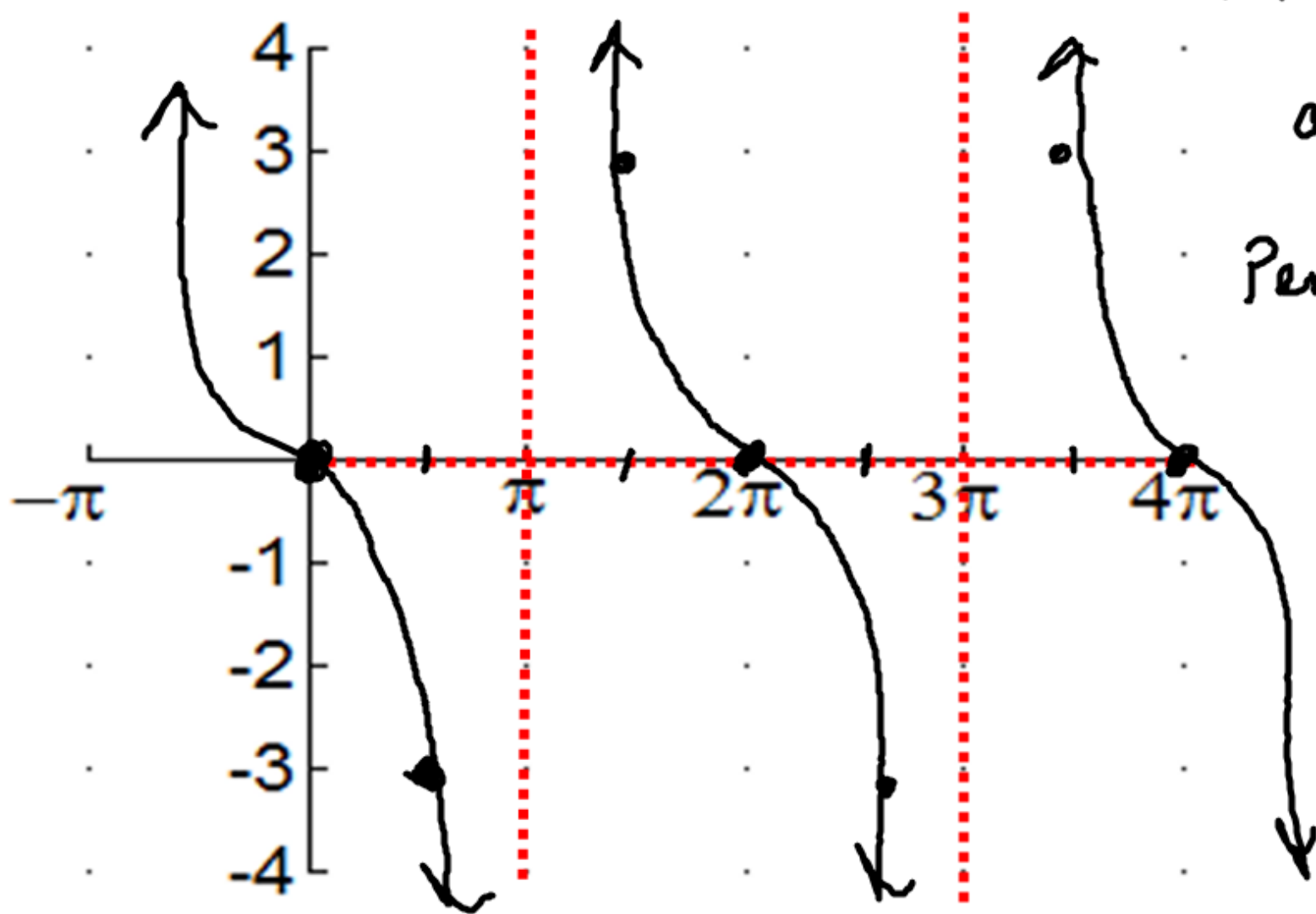
a = 1

Per: $\frac{\pi}{2}$



Graph.

$$y = \underline{-3} \tan\left(\frac{x}{\underline{2}}\right)$$



Mid: 0

$$a = 3 (\checkmark 1^{st})$$

Per: 2π