Graphing Tangent and Cotangent

$$y = atan[kx]$$
$$k > 0$$

Period $p = \frac{\pi}{k}$

Interval of One Cycle $= \left(-\frac{\pi}{2k}, \frac{\pi}{2k}\right)$

Vertical Asymptotes $x = -\frac{\pi}{2k}$ and $x = \frac{\pi}{2k}$

$$y = acot[kx]$$
$$k > 0$$

Period $p = \frac{\pi}{k}$

Interval of One Cycle $= \left(0, \frac{\pi}{k}\right)$

Vertical Asymptotes $x = 0$ and $x = \frac{\pi}{k}$

Determine the period, interval of one cycle, x-intercept, vertical asymptotes.

1. $y = tan(2x)$

2. $y = tan(4x)$

3. $y = \frac{1}{4} tan\left(\frac{x}{3}\right)$

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

5. $y = \frac{2}{3}\cot\left(\frac{1}{2}x\right)$

6. $y = cot\left(\frac{1}{3}x\right)$

7. $y = -\cot(2x)$

8. $y = -cot(3x)$

9. $y = -4tan(\pi x)$

10. $y = 3tan(2\pi x)$

11. $y = 2cot(3\pi x)$

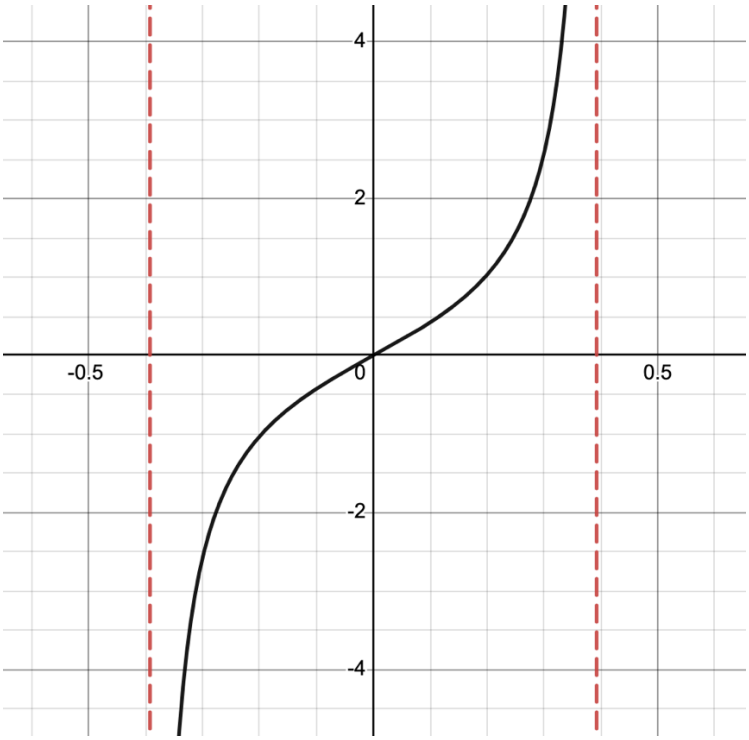
12. $y = \frac{3}{2}cot(4\pi x)$

13. $y = 3tan\left(-\frac{x}{4}\right)$

14. $y = 2tan\left(-\frac{x}{6}\right)$

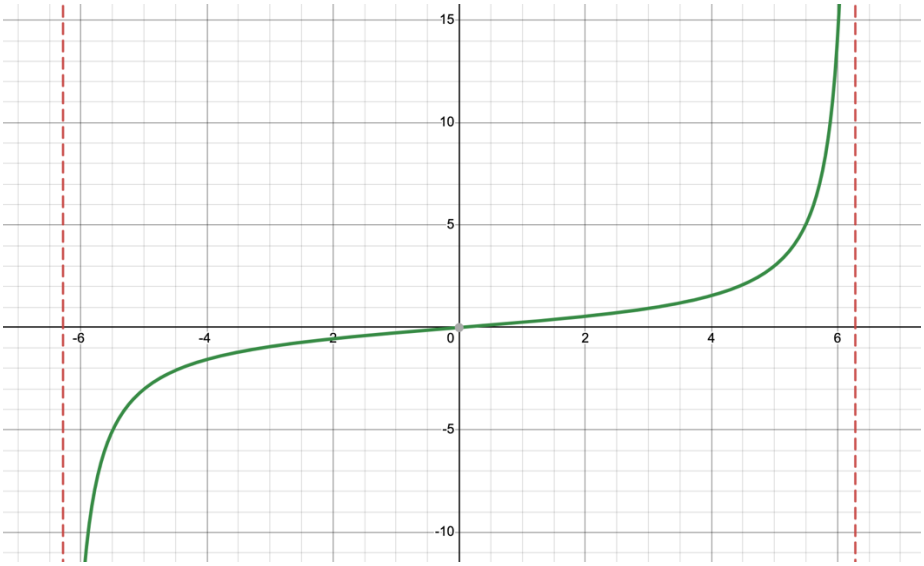
Answers

2.



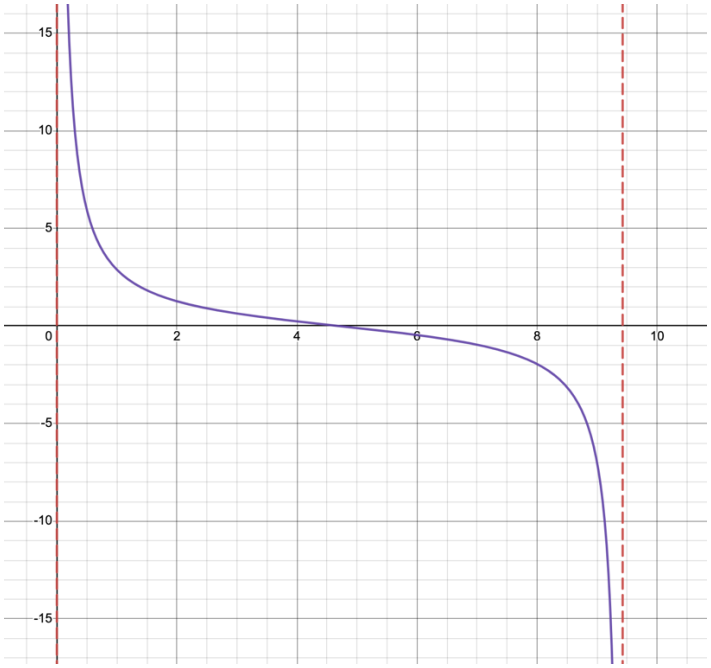
Period=$\frac{\pi}{3}$, Interval=$\left(0, \frac{\pi}{6}\right)$, VA: $x = 0, x = \frac{\pi}{6}$, x-int: $x = \frac{\pi}{12}$

4.



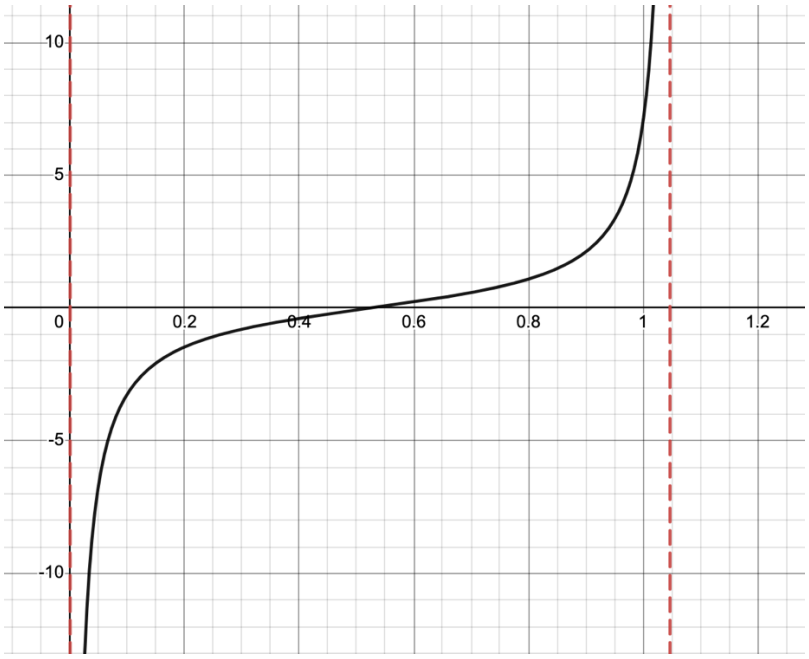
Period=4π, Interval=$(-2\pi, 2\pi)$, VA: $x = -2\pi, x = 2\pi$, x-int: $x = 0$

6.



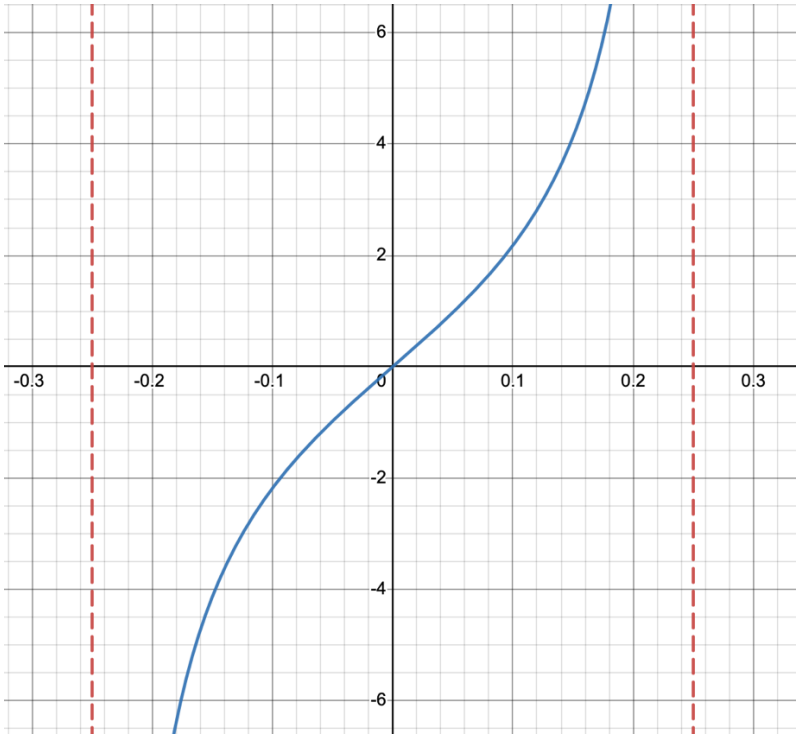
Period=3π, Interval=$(0,3\pi)$, VA: $x=0, x=3\pi$, x-int: $x=\frac{3\pi}{2}$

8.



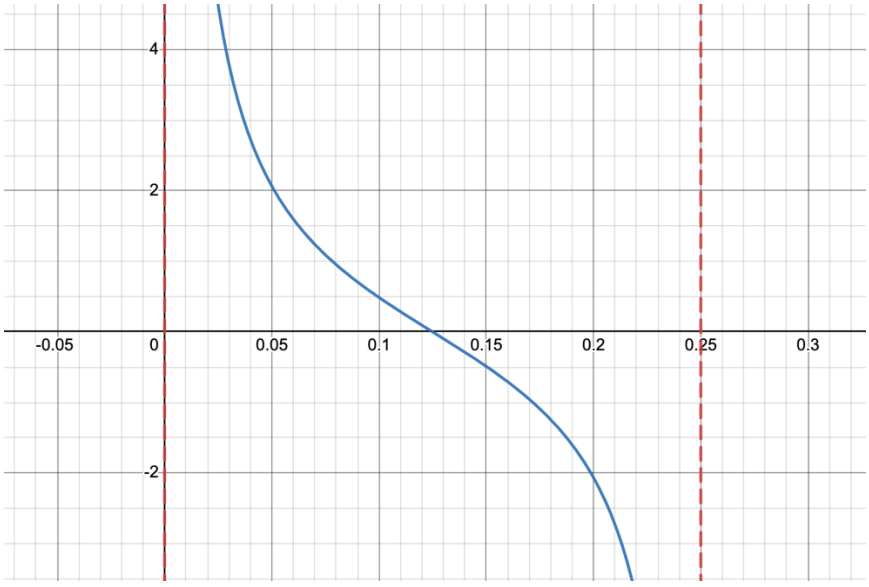
Period=$\frac{\pi}{3}$, Interval=$\left(0,\frac{\pi}{3}\right)$, VA: $x=0, x=\frac{\pi}{3}$, x-int: $x=\frac{\pi}{6}$

10.



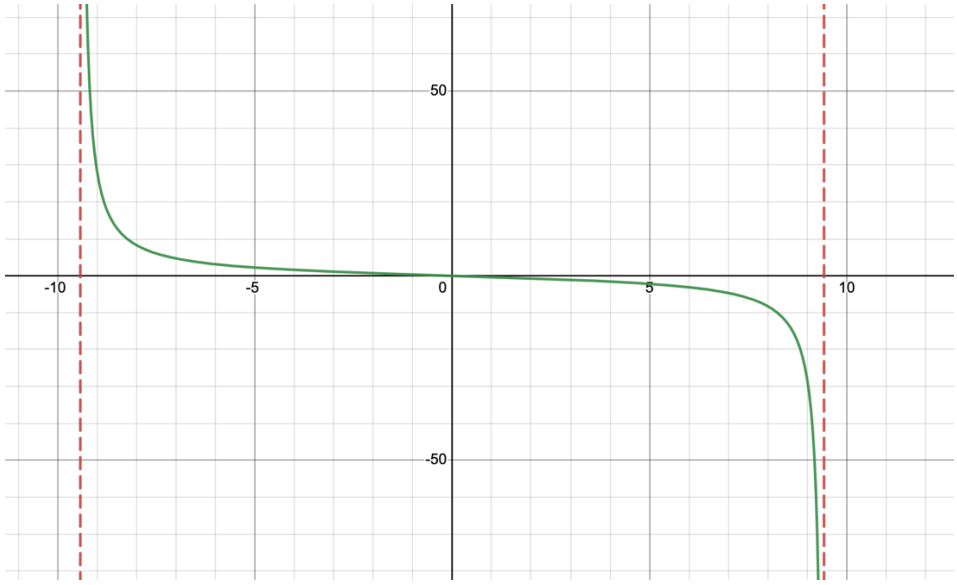
Period=$\frac{1}{2}$, Interval=$\left(-\frac{1}{4},\frac{1}{4}\right)$, VA: $x=-\frac{1}{4}, x=\frac{1}{4}$, x-int: $x=0$

12.



Period=$\frac{1}{4}$, Interval=$\left(0,\frac{1}{8}\right)$, VA: $x=0, x=\frac{1}{8}$, x-int: $x=\frac{1}{16}$

14.



Period=6π, Interval=$(-3\pi, 3\pi)$, VA: $x = -3\pi, x = 3\pi$, x-int: $x = 0$