

College Algebra

Name: Key

8.4 Day 2 csc/sec graphs

Date: _____ Period: _____

1.) Explain how you use the sine/cosine curves to graph cosecant/secant.

2.) Do the graphs of secant and cosecant have an amplitude? Why or why not?

3.) Explain why secant and cosecant graphs have vertical asymptotes.

Find the important information for one period of the equation, then graph.

4.) $y = \frac{\sin}{\csc} x + 3$

Amplitude: DNE

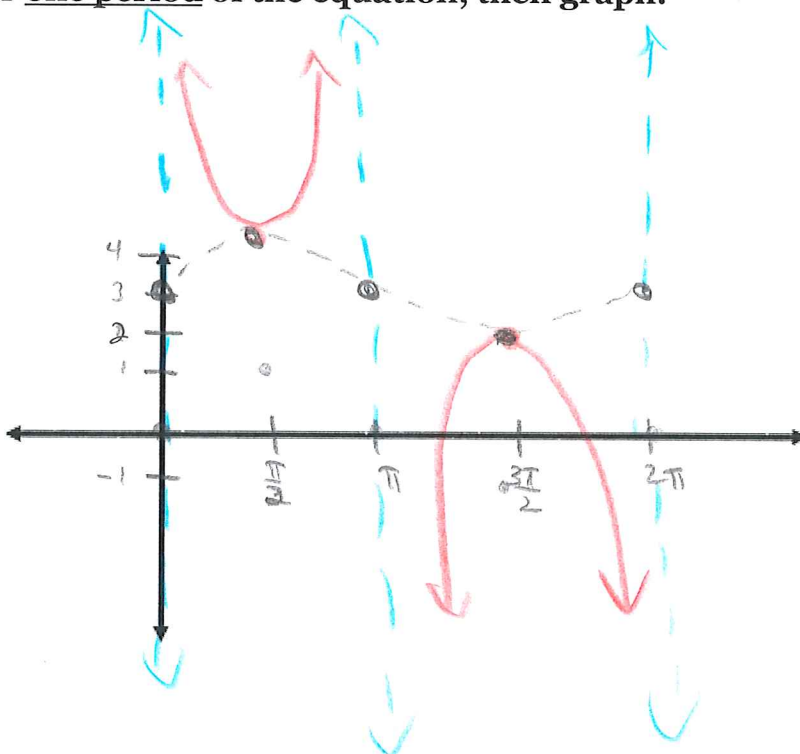
Period: 2π

H.S.: none

V.S.: $\uparrow 3$

Domain: $(0, \pi) \cup (\pi, 2\pi)$

Range: $(-\infty, 2] \cup [4, \infty)$



5.) $y = \sec 3\left(x - \frac{\pi}{3}\right) - 1$

Amplitude: DNE

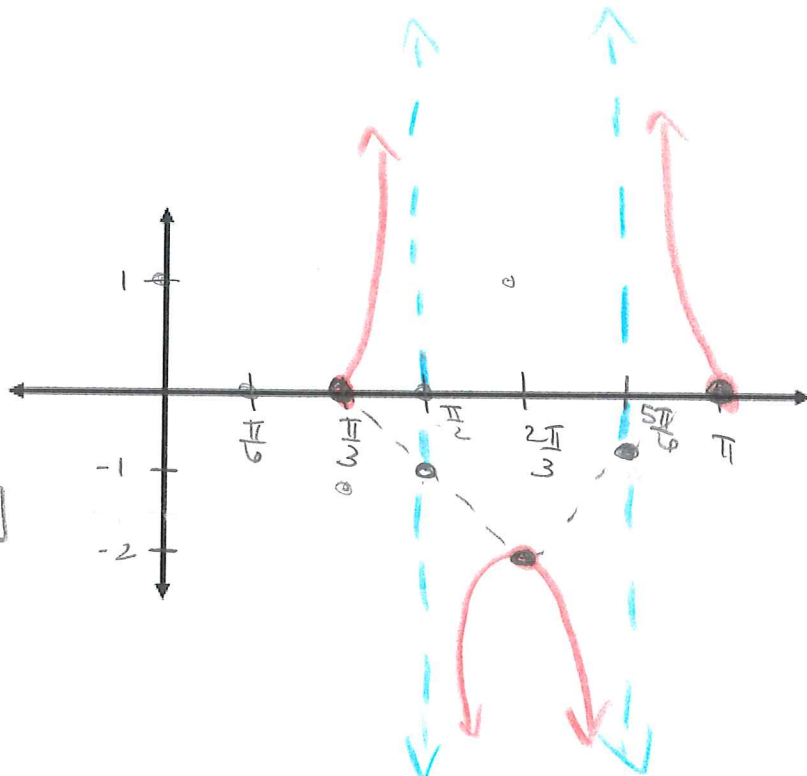
Period: $\frac{2\pi}{3}$

H.S.: $\frac{\pi}{3} \rightarrow$

V.S.: $\downarrow 1$

Domain: $\left[\frac{\pi}{3}, \frac{\pi}{2}\right) \cup \left(\frac{\pi}{2}, \frac{5\pi}{6}\right) \cup \left(\frac{5\pi}{6}, \pi\right]$

Range: $(-\infty, -2] \cup [0, \infty)$



6.) $y = -\csc\left(3x + \frac{\pi}{6}\right)$

Amplitude: DNE (1)

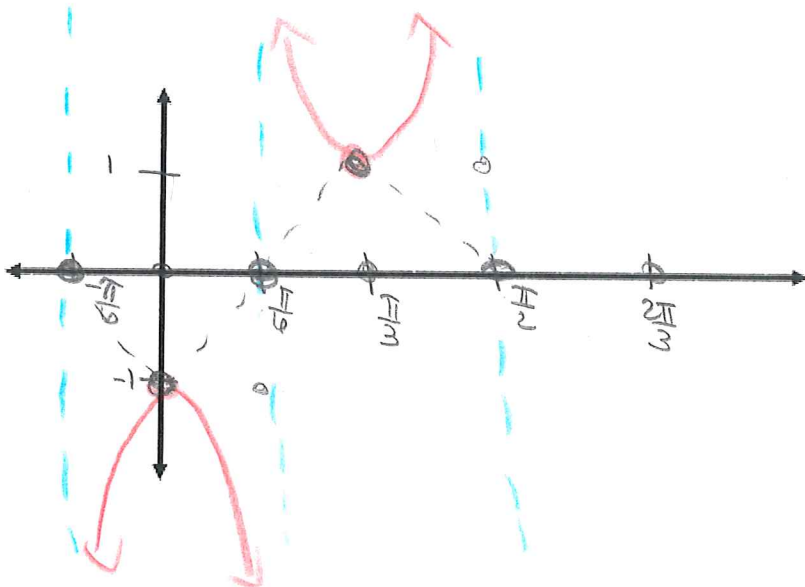
Period: $\frac{2\pi}{3}$

H.S.: $\frac{\pi}{6} \leftarrow$

V.S.: none

Domain: $\left(-\frac{\pi}{6}, \frac{\pi}{6}\right) \cup \left(\frac{\pi}{6}, \frac{\pi}{2}\right)$

Range: $(-\infty, -1] \cup [1, \infty)$



7.) $y = 3\sec\left(\frac{1}{2}x + \pi\right) - 3$

Amplitude: DNE (3)

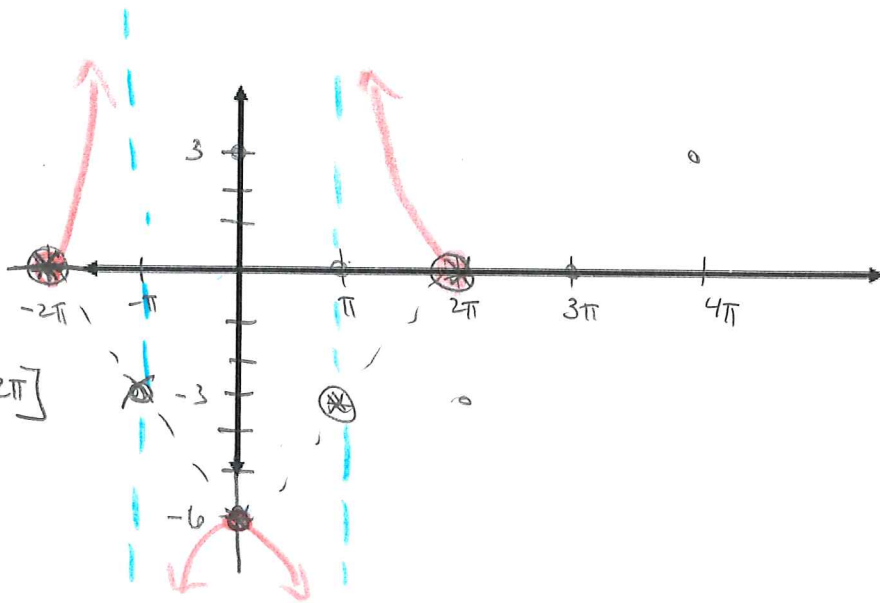
Period: $\frac{2\pi}{1/2} = 4\pi$

H.S.: $2\pi \leftarrow$

V.S.: $\downarrow 3$

Domain: $[-2\pi, -\pi) \cup (-\pi, \pi) \cup (\pi, 2\pi]$

Range: $(-\infty, -6] \cup [0, \infty)$



8.) $y = \frac{1}{2} \text{csc}(x - \pi)$

Amplitude: DNE (1/2)

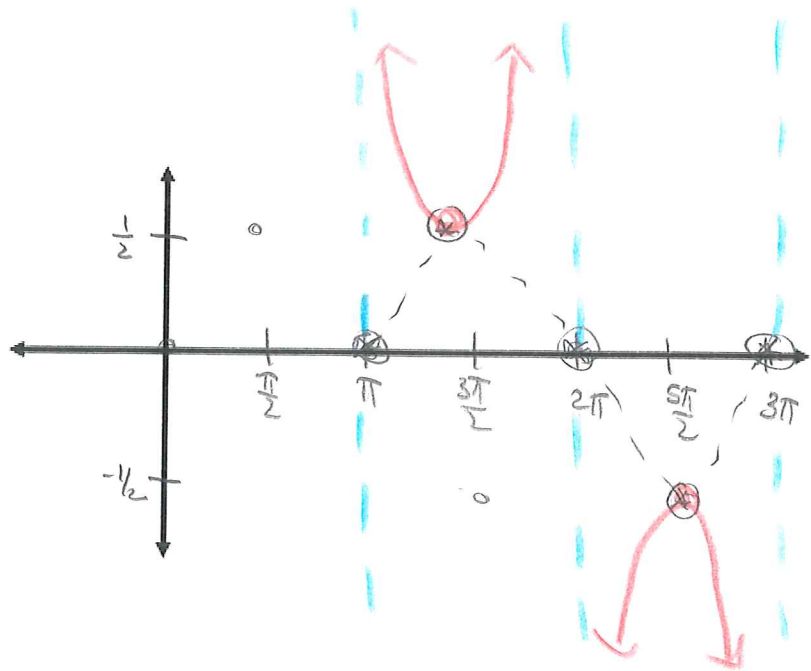
Period: 2π

H.S.: $\pi \rightarrow$

V.S.: none

Domain: $(\pi, 2\pi) \cup (2\pi, 3\pi)$

Range: $(-\infty, -\frac{1}{2}] \cup [\frac{1}{2}, \infty)$



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

Amplitude: DNE (*)

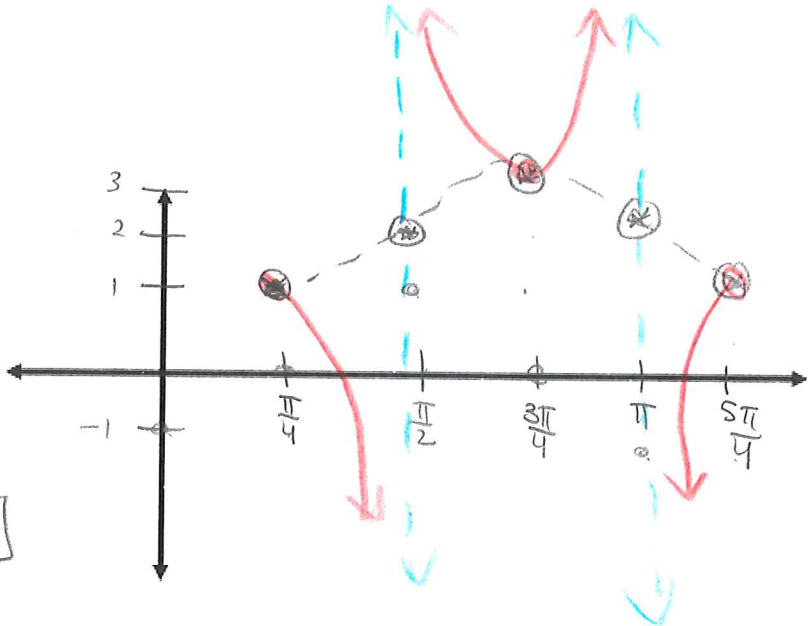
Period: $\frac{2\pi}{2} = \pi$

H.S.: $\frac{\pi}{4} \rightarrow$

V.S.: $\uparrow 2$

Domain: $[\frac{\pi}{4}, \frac{\pi}{2}) \cup (\frac{\pi}{2}, \pi) \cup (\pi, \frac{5\pi}{4}]$

Range: $(-\infty, 1] \cup [3, \infty)$



10.) $y = 4 \text{sec } 2x - 3$

Amplitude: DNE (4)

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

H.S.: none

V.S.: $\downarrow 3$

Domain: $(0, \frac{\pi}{2}) \cup (\frac{\pi}{2}, \pi)$

Range: $(-\infty, -7] \cup [1, \infty)$

