

## 4.5 Reciprocal Graphs of Sec,Csc,Cot

Step 1: Draw the parent function as a guide  
sec-cos as a guide, csc-sin as a guide

Step 2: Draw asymptotes, wherever the guide crosses the x-axis

Step 3: If the guide has a max between the asymptotes, then the reciprocal has a min and vice versa.

$$f(x) = \csc x$$

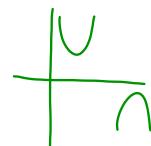
$$a = 1$$

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

$$K = 0$$

$$\text{Asymp} = 0, \pi, 2\pi$$

1. guide  $\sin x$



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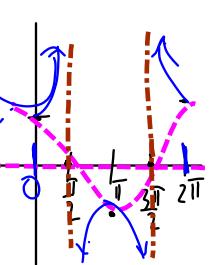
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$$f(x) = \sec x$$

$$a: 1$$

$$P: 2\pi$$

$$\text{Asymp}: \dots$$



- 1. guide
- 2. asympt
- 3. max/min opposites

Where is the tangent undefined?

Why can't you get over your ex....

$$\frac{Y}{X} = 0$$

Period of the tan and cot is  $\pi$

$$\begin{array}{ll} X & 0, \pi, 2\pi \\ \dots Y & \text{cot undefined at } 0 \end{array}$$

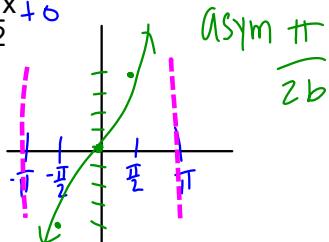
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$$\text{Ex: } f(x) = 4 \tan 1x + 6$$

$$\text{period: } \frac{\pi}{2\pi}$$

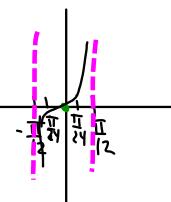
$$\begin{array}{l} \text{Asymp: } -\frac{\pi}{2}, \frac{\pi}{2} \\ \text{Y-int: } (0, 6) \end{array}$$



$$f(x) = \frac{1}{6} \tan 6x$$

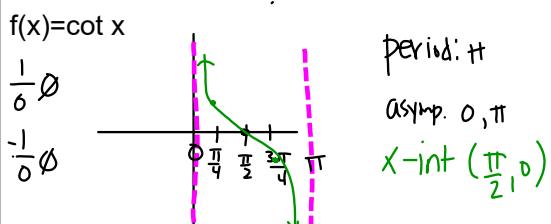
$$\text{period: } \frac{\pi}{6}$$

$$\begin{array}{l} \text{Asymp: } -\frac{\pi}{12}, \frac{\pi}{12} \\ \text{Y-int: } (0, 0) \end{array}$$

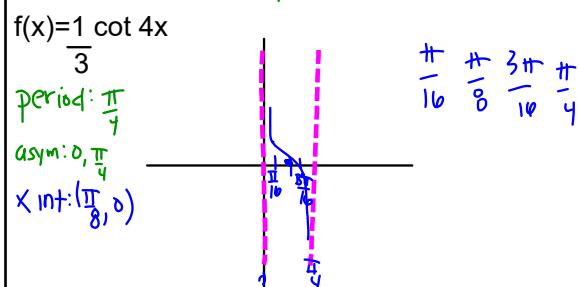


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Graph W.S. due 2/23  
Review due 2/23

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