

Graphing Secant and Cosecant functions

Lesson 6

1.19.16

Section 6.7

Warm-up

1) Sketch $y = \sin x$.

2) Sketch $y = \cos x$.

3) Sketch $y = \sin(2x + \pi) - 3$

Cosecant

$y = \csc x$

Sketch the corresponding Sine graph. $y = \sin x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>csc graph</i>	

I do:

$$y = \csc(2x + \pi) - 3$$

Sketch the corresponding Sine graph. $y = \sin x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>csc graph</i>	

What is the period?

What is the phase shift?

What is the vertical translation?

How are those in relationship with $y = \sin(2x + \pi) - 3$

We do:

$$y = \csc(x - 3\pi) + 1$$

Sketch the corresponding Sine graph. $y = \sin x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>csc graph</i>	

You do!

$$y = -2 \csc(4x - \pi)$$

Sketch the corresponding Sine graph. $y = \sin x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>csc graph</i>	

You do!

$$y = -2 \csc(4x - \pi)$$

Sketch the corresponding Sine graph. $y = \sin x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>csc graph</i>	

Secant

$$y = \sec x$$

Sketch the corresponding Sine graph. $y = \cos x$	
Identify the asymptotes and label. (Start, mid, end of sine cycle.)	
Sketch the <i>sec graph</i>	

I do:

$$y = \sec(2x + \pi) - 3$$

Sketch the corresponding cosine graph. $y = \cos x$	
Identify the asymptotes and label. First and 3 rd quarter	
Sketch the sec <i>graph</i>	

What is the period?

What is the phase shift?

What is the vertical translation?

How are those in relationship with $y = \sin(2x + \pi) - 3$

We do:

$$y = \sec(x - 3\pi) - 1$$

Sketch the corresponding cosine graph. $y = \cos x$	
Identify the asymptotes and label. First and 3 rd quarter	
Sketch the sec <i>graph</i>	

You do with your partner!

$$y = 2 \sec\left(\frac{x}{2}\right) + 3$$

Sketch the corresponding cosine graph. $y = \cos x$	
Identify the asymptotes and label. First and 3 rd quarter	
Sketch the sec <i>graph</i>	

You do!

$$y = -2 \sec\left(x + \frac{\pi}{6}\right)$$

I do:

Write a cosecant equation given

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

$$\text{Phase Shift} = \frac{\pi}{2}$$

$$\text{Vertical Shift} = +3$$

Identify c,k, and h	
Plug into equation	

We Try:

Write a secant equation given

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

$$\text{Phase Shift} = \frac{\pi}{3}$$

$$\text{Vertical Shift} = -2$$

Identify c,k, and h	
Plug into equation	

You Try with your partner:

Write a secant equation given

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

$$\text{Phase Shift} = \pi$$

$$\text{Vertical Shift} = -1$$

Write a cosecant equation given

$$\text{Period} = \frac{3\pi}{2}$$

$$\text{Phase Shift} = \frac{\pi}{6}$$

$$\text{Vertical Shift} = 0$$

You Try:

Write a cosecant equation given

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

$$\text{Phase Shift} = 3$$

$$\text{Vertical Shift} = -4$$

Exit slip

1) Write a secant equation given

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

$$\text{Phase Shift} = \frac{\pi}{2}$$

$$\text{Vertical Shift} = -1$$

2) Sketch the graph