Name:_____ Name:_____

M12P HW 5.6 Graphing Cosine and Cosecant and Cotangent Function with Transformations

1. What are the equations of the vertical asymptote for $y = \csc\theta$ from $0 \le \theta \le 2\pi$. Explain how you would find the V.A. using an unit circle. Write a general formula for the V.A. Indicate the Domain and range:

2. What are the equations of the vertical asymptote for $y = \sec\theta$ from $0 \le \theta \le 2\pi$. Explain how you would find the V.A. using an unit circle. Write a general formula for the V.A. Indicate the Domain and range:

3. What are the equations of the vertical asymptote for $y = \cot\theta$ from $0 \le \theta \le 2\pi$. Explain how you would find the V.A. using an unit circle. Write a general formula for the V.A. Indicate the Domain and range:

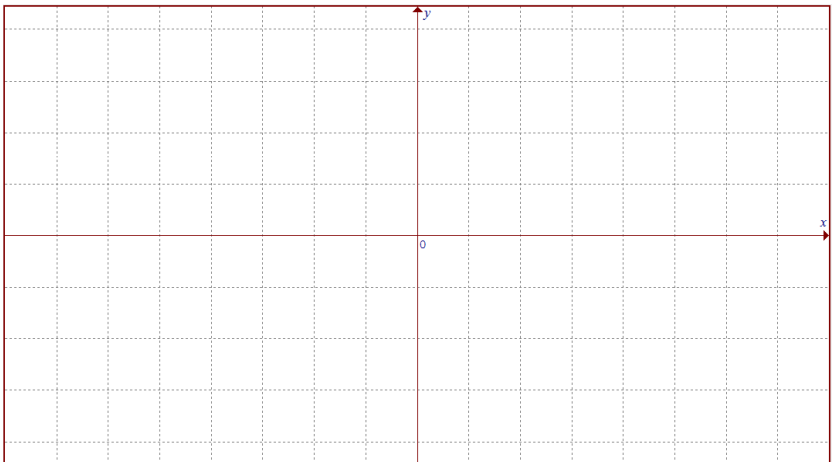
4. When looking at the function shown, which constant will affect the VA? A, B, C, and D? Indicate how these constants will change the vertical asymptotes:
   $y = A\cos B(\theta - C) + D$

5. For each of the equations below, indicate the constants "A", "B", "C", and "D" and then find the vertical asymptotes from $0 \le \theta \le 2\pi$. Find a general formula for the vertical asymptotes, domain, range, and period. Show all your work and steps:

a) $y = 2\csc\left(\theta + \frac{\pi}{3}\right) - 2$	b) $y = -2\sec\left(\theta + \frac{2\pi}{3}\right) - 1$

c) $y=-3\tan\pi\left(-2\theta+3\right)+4$	d) $y=-\cot\left(2\theta-\frac{\pi}{5}\right)-4$
e) $y=3\csc\frac{\pi}{4}\left(2\theta+\frac{2}{3}\right)-2$	f) $y=-3\sec\frac{3\pi}{8}\left(3\theta+2\right)+1$
g) $y=3\tan\left(5x-\frac{\pi}{3}\right)+4$	h) $y=5\cot\pi\left(3x-\frac{7}{6}\right)-5$

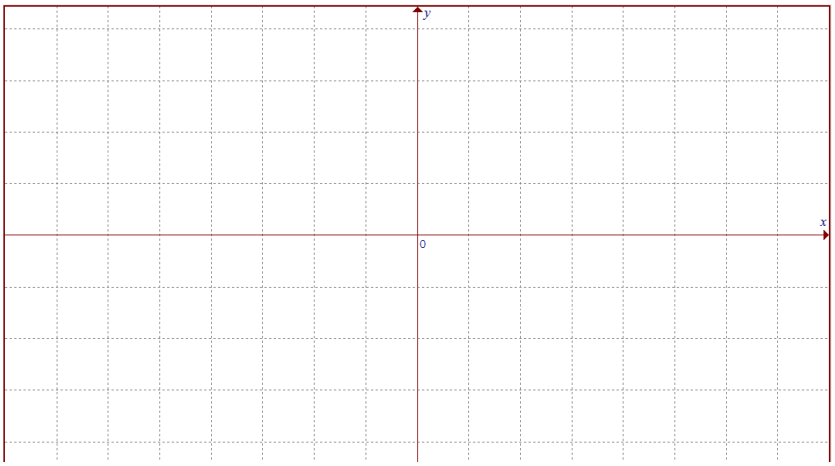
6. Graph the corresponding Sine/Cosine function, and then graph the equation: $y = 2\csc\left(\theta + \frac{\pi}{2}\right) - 0.5$



Indicate domain and range:

Find a general formula for all Vert. Asymptote

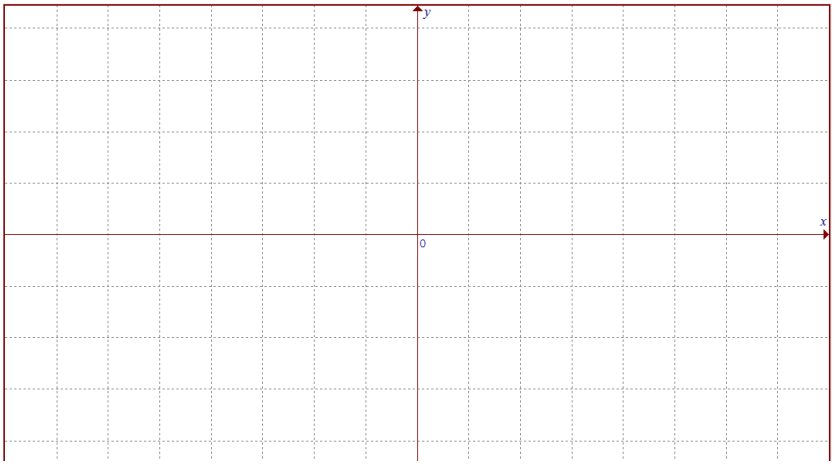
7. Graph the corresponding Sine/Cosine function, and then graph the equation: $y = 0.5\sec\left(\theta - \frac{2\pi}{3}\right) + 1$



Indicate the domain and range:

Find a general formula for all Vert. Asymptote

8. Graph the corresponding Sine/Cosine function, and then graph the equation: $y = 3\csc\frac{\pi}{3}(2 - \theta) + 1$

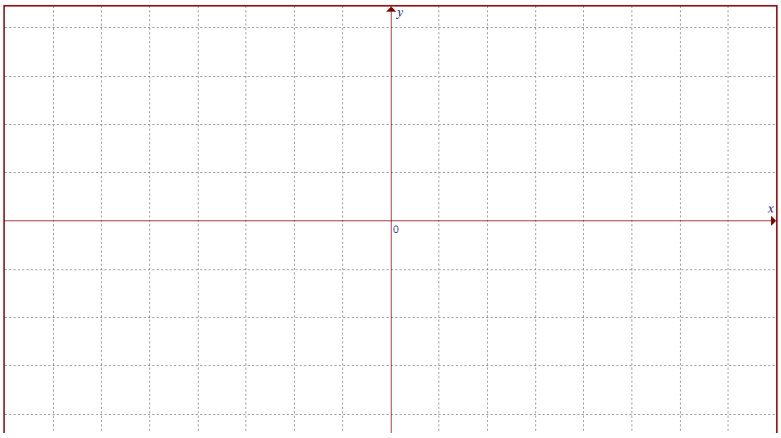


Indicate domain and range:

Find a general formula for all Vert. Asymptote

9. Find the period, amplitude, and phase shift of $y = -2\sin\left(\frac{x}{4} - \frac{\pi}{3}\right)$

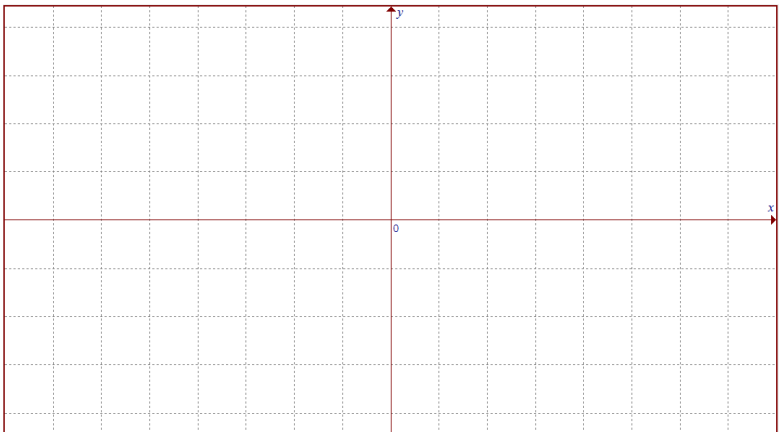
10. Graph the function on the graph provided: $y = 3\tan\frac{\pi}{4}(-\theta + 2) + 1$



Indicate the domain and range:

Find a general formula for all Vert. Asymptote

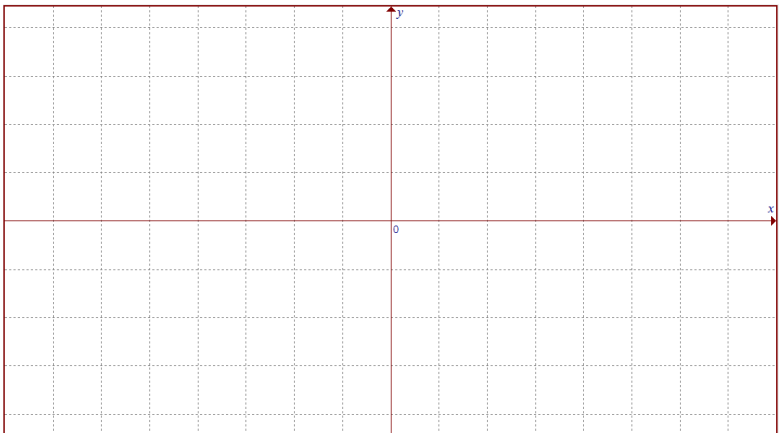
11. Graph the function on the graph provided: $y = 3\cot 2\left(\theta - \frac{\pi}{3}\right) + 2$



Indicate the domain and range:

Find a general formula for all Vert. Asymptote

12. Graph the function on the graph provided: $y = 3\cot\frac{2\pi}{5}(\theta - 2) + 2$



Indicate the domain and range:

Find a general formula for all Vert. Asymptote