

Pre-Calculus Section 5.4. More Graphing Trigonometric Functions Tangent, Cotangent, Se...

Lesson 169 | Trigonometry | Tangent, cotangent, secant and cosecant graphs

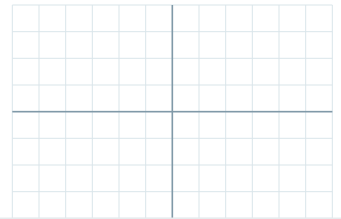
<https://www.youtube.com/watch?v=V7zzfEV1fIA>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

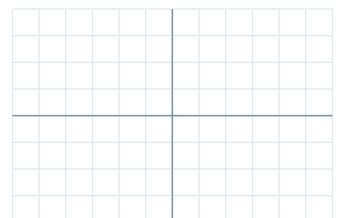
Graph $y=5\csc(7(x-(-3)))+7$. Give period, range, and all vertical asymptotes.

**02**

Analyze $y=3\cot(4(x-6)))+9$: period, asymptotes, and a central point between consecutive asymptotes.

03

Graph $y=6\tan(5(x-5)))+11$. Give period, center, and adjacent vertical asymptotes.



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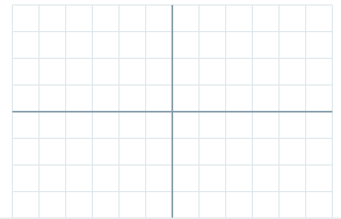
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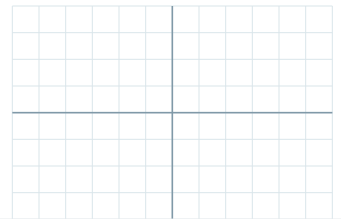
Name: _____ Date: _____ Show your reasoning.

04

Graph $y=5\sec(2(x-(-3)))+8$. Give period, range, and all vertical asymptotes.

**05**

Graph $y=10\tan(6(x-(-9)))+12$. Give period, center, and adjacent vertical asymptotes.

**06**

Analyze $y=8\cot(4(x-(-6)))+6$: period, asymptotes, and a central point between consecutive asymptotes.

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01

Graph $y=5\csc(7(x-(-3)))+7$. Give period, range, and all vertical asymptotes.

Period $2\pi/7$. Range $y \leq 2$ or $y \geq 12$. Sine zeros give asymptotes $x=-3+k\pi/7$. k is any integer. Sketch reciprocal branches outside the excluded midline band.

02

Analyze $y=3\cot(4(x-(6)))+9$: period, asymptotes, and a central point between consecutive asymptotes.

Period $\pi/4$. Asymptotes $x=6+k\pi/4$, k integer. Between $x=6$ and $x=6+\pi/4$, the midpoint is $(6+\pi/8, 9)$; cotangent decreases there.

03

Graph $y=6\tan(5(x-(5)))+11$. Give period, center, and adjacent vertical asymptotes.

Period $\pi/5$; center $(5, 11)$; asymptotes $x=5 \pm \pi/10$. At $x=5 \pm \pi/20$, $y=11 \pm 6$, respectively. Repeat every $\pi/5$.

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04

Graph $y=5\sec(2(x-(-3)))+8$. Give period, range, and all vertical asymptotes.

Period $2\pi/2$. Range $y\leq 3$ or $y\geq 13$. Cosine zeros give asymptotes $x=-3+(\pi/2+k\pi)/2$. k is any integer. Sketch reciprocal branches outside the excluded midline band.

05

Graph $y=10\tan(6(x-(-9)))+12$. Give period, center, and adjacent vertical asymptotes.

Period $\pi/6$; center $(-9,12)$; asymptotes $x=-9\pm\pi/12$. At $x=-9\pm\pi/24$, $y=12\pm 10$, respectively. Repeat every $\pi/6$.

06

Analyze $y=8\cot(4(x-(-6)))+6$: period, asymptotes, and a central point between consecutive asymptotes.

Period $\pi/4$. Asymptotes $x=-6+k\pi/4$, k integer. Between $x=-6$ and $x=-6+\pi/4$, the midpoint is $(-6+\pi/8,6)$; cotangent decreases there.