

The Mysterious of Vertical Asymptotes of Tangent and Cotangent Functions (Trig. Honors ...)

Lesson 156 | Trigonometry | Tangent, cotangent, secant and cosecant graphs

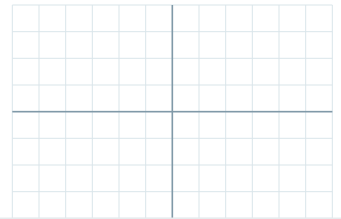
<https://www.youtube.com/watch?v=NDnoyXwCbmU>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

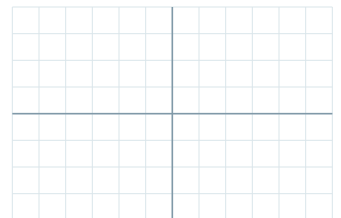
Graph $y=14\tan(6(x-(-7)))+11$. Give period, center, and adjacent vertical asymptotes.

**02**

Analyze $y=7\cot(3(x-(6)))+5$: period, asymptotes, and a central point between consecutive asymptotes.

03

Graph $y=12\tan(7(x-(-9)))+4$. Give period, center, and adjacent vertical asymptotes.



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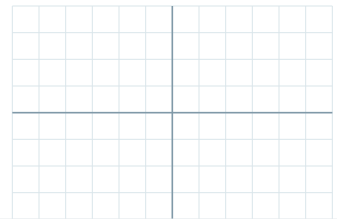
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04

Analyze $y=8\cot(6(x-3))+4$: period, asymptotes, and a central point between consecutive asymptotes.

05

Graph $y=3\tan(3(x-8))+7$. Give period, center, and adjacent vertical asymptotes.

**06**

Analyze $y=11\cot(6(x-5))+2$: period, asymptotes, and a central point between consecutive asymptotes.

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01

Graph $y=14\tan(6(x-(-7)))+11$. Give period, center, and adjacent vertical asymptotes.

Period $\pi/6$; center $(-7,11)$; asymptotes $x=-7\pm\pi/12$. At $x=-7\pm\pi/24$, $y=11\pm14$, respectively. Repeat every $\pi/6$.

02

Analyze $y=7\cot(3(x-(6)))+5$: period, asymptotes, and a central point between consecutive asymptotes.

Period $\pi/3$. Asymptotes $x=6+k\pi/3$, k integer. Between $x=6$ and $x=6+\pi/3$, the midpoint is $(6+\pi/6,5)$; cotangent decreases there.

03

Graph $y=12\tan(7(x-(-9)))+4$. Give period, center, and adjacent vertical asymptotes.

Period $\pi/7$; center $(-9,4)$; asymptotes $x=-9\pm\pi/14$. At $x=-9\pm\pi/28$, $y=4\pm12$, respectively. Repeat every $\pi/7$.

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04

Analyze $y=8\cot(6(x-(3)))+4$: period, asymptotes, and a central point between consecutive asymptotes.

Period $\pi/6$. Asymptotes $x=3+k\pi/6$, k integer. Between $x=3$ and $x=3+\pi/6$, the midpoint is $(3+\pi/12, 4)$; cotangent decreases there.

05

Graph $y=3\tan(3(x-(8)))+7$. Give period, center, and adjacent vertical asymptotes.

Period $\pi/3$; center $(8, 7)$; asymptotes $x=8\pm\pi/6$. At $x=8\pm\pi/12$, $y=7\pm 3$, respectively. Repeat every $\pi/3$.

06

Analyze $y=11\cot(6(x-(5)))+2$: period, asymptotes, and a central point between consecutive asymptotes.

Period $\pi/6$. Asymptotes $x=5+k\pi/6$, k integer. Between $x=5$ and $x=5+\pi/6$, the midpoint is $(5+\pi/12, 2)$; cotangent decreases there.