

Watch. Practice. Understand. | Lesson 157

The Secret of Graphing the Ultimate Forms of Secant and Cosecant Functions (4.4 Part II)

Watch the matching video: <https://www.youtube.com/watch?v=zRjTtfHMpnQ>

Practice focus: Tangent, cotangent, secant and cosecant graphs

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find the period and vertical asymptotes of $y = \tan(2x)$.

02 Find the period and asymptotes of $y = \cot x$.

03 Find the range and vertical asymptotes of $y = \sec x$.

04 Find the range and vertical asymptotes of $y = 2\csc x + 1$.

Worked answers | Lesson 157

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Practice focus: Tangent, cotangent, secant and cosecant graphs

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01 Find the period and vertical asymptotes of $y = \tan(2x)$.

Period $\pi/2$. $\cos(2x) = 0$ gives $x = \pi/4 + k\pi/2$ for any integer k .

02 Find the period and asymptotes of $y = \cot x$.

Period π ; $\sin x = 0$ gives $x = k\pi$ for any integer k .

03 Find the range and vertical asymptotes of $y = \sec x$.

Range $(-\infty, -1]$ union $[1, \infty)$. Asymptotes $x = \pi/2 + k\pi$ for integer k .

04 Find the range and vertical asymptotes of $y = 2\csc x + 1$.

Range $(-\infty, -1]$ union $[3, \infty)$. Asymptotes $x = k\pi$ for integer k .