

Algebra II and Trigonometry Final Packet Review Part 4

Lesson 163 | Trigonometry | Rational expressions and graphs • Trigonometric equations • Sine and cosine graphs

https://www.youtube.com/watch?v=70MtC_se0Ro

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

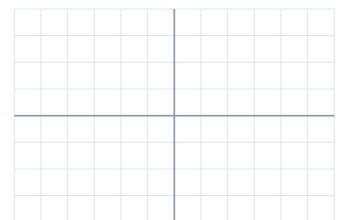
Simplify $(x^2 - 5x - 36)/(x - 9)$ and identify the excluded input and hole.

02

Solve $7\sin(7x) - 7/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

03

Analyze and sketch one cycle of $y = 10\sin(2(x - (-6))) + 8$. Give amplitude, period, phase shift, midline, and five key points.



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04

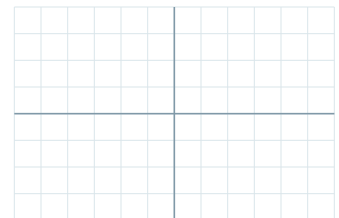
Simplify $(x^2 - 11x - 26)/(x - 13)$ and identify the excluded input and hole.

05

Solve $6\sin(4x) - 3 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

06

Analyze and sketch one cycle of $y = 13\sin(3(x - (-2))) + 3$. Give amplitude, period, phase shift, midline, and five key points.



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01

Simplify $(x^2 - 5x - 36)/(x - 9)$ and identify the excluded input and hole.

Factor the numerator as $(x-9)(x+4)$. Cancel for $x \neq 9$; simplified rule $x+4$. The original domain excludes 9; the hole is (9, 13).

02

Solve $7\sin(7x) - 7/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(7x) = 1/2$. Thus $x = (\pi/6 + 2k\pi)/7$ or $x = (5\pi/6 + 2k\pi)/7$, $k=0,1,\dots,6$. There are 14 roots in the interval.

03

Analyze and sketch one cycle of $y = 10\sin(2(x - (-6))) + 8$. Give amplitude, period, phase shift, midline, and five key points.

Amplitude 10; period $2\pi/2$; shift -6; midline $y=8$. Start at $x=-6$; use x -increments $\pi/4$. The five y -values are 8, 18, 8, -2, 8.

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04

Simplify $(x^2 - 11x - 26)/(x - 13)$ and identify the excluded input and hole.

Factor the numerator as $(x-13)(x+2)$. Cancel for $x \neq 13$; simplified rule $x+2$. The original domain excludes 13; the hole is (13, 15).

05

Solve $6\sin(4x)-3=0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(4x)=1/2$. Thus $x=(\pi/6+2k\pi)/4$ or $x=(5\pi/6+2k\pi)/4$, $k=0,1,\dots,3$. There are 8 roots in the interval.

06

Analyze and sketch one cycle of $y=13\sin(3(x-(-2)))+3$. Give amplitude, period, phase shift, midline, and five key points.

Amplitude 13; period $2\pi/3$; shift -2; midline $y=3$. Start at $x=-2$; use x -increments $\pi/6$. The five y -values are 3, 16, 3, -10, 3.