

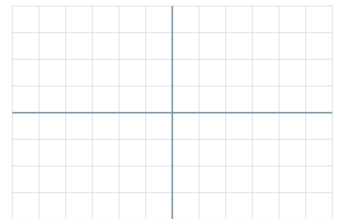
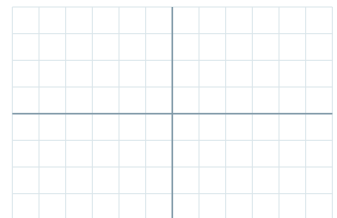
Algebra II Trigonometry Honors Big Idea Chapter 7 Rational Functions Part 1

Lesson 117 | Algebra II | Rational expressions and graphs

<https://www.youtube.com/watch?v=XM40O7A7a1w>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01Simplify $(x^2 - 6x - 72)/(x - 12)$ and identify the excluded input and hole.**02**Analyze and sketch $f(x) = 7/(x - 0) + 9$. Give domain, asymptotes, intercepts, and two points.**03**Analyze and sketch $f(x) = 5/(x - -2) + 11$. Give domain, asymptotes, intercepts, and two points.

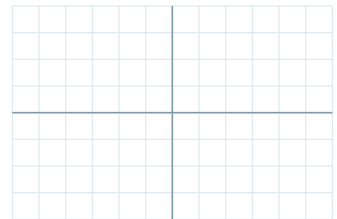
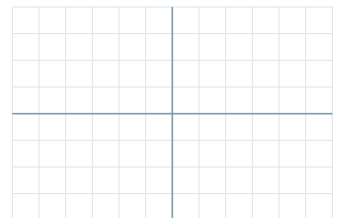
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04Simplify $(x^2 - x - 6)/(x - 3)$ and identify the excluded input and hole.**05**Analyze and sketch $f(x) = 6/(x - 1) + 5$. Give domain, asymptotes, intercepts, and two points.**06**Analyze and sketch $f(x) = 14/(x - 8) + 2$. Give domain, asymptotes, intercepts, and two points.

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01

Simplify $(x^2 - 6x - 72)/(x - 12)$ and identify the excluded input and hole.

Factor the numerator as $(x-12)(x+6)$. Cancel for $x \neq 12$; simplified rule $x+6$. The original domain excludes 12; the hole is (12, 18).

02

Analyze and sketch $f(x) = 7/(x - 0) + 9$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq 0$; vertical asymptote $x=0$; horizontal asymptote $y=9$. Zero: $x = -7/9$. No y-intercept because $x=0$ is excluded. Points (1, 16) and (-1, 2).

03

Analyze and sketch $f(x) = 5/(x - -2) + 11$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq -2$; vertical asymptote $x=-2$; horizontal asymptote $y=11$. Zero: $x = -27/11$. y-intercept $27/2$. Points (-1, 16) and (-3, 6).

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04

Simplify $(x^2 - x - 6)/(x - 3)$ and identify the excluded input and hole.

Factor the numerator as $(x-3)(x+2)$. Cancel for $x \neq 3$; simplified rule $x+2$. The original domain excludes 3; the hole is (3, 5).

05

Analyze and sketch $f(x) = 6/(x - -1) + 5$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq -1$; vertical asymptote $x=-1$; horizontal asymptote $y=5$. Zero: $x = -11/5$. y-intercept 11. Points (0, 11) and (-2, -1).

06

Analyze and sketch $f(x) = 14/(x - -8) + 2$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq -8$; vertical asymptote $x=-8$; horizontal asymptote $y=2$. Zero: $x = -15$. y-intercept $15/4$. Points (-7, 16) and (-9, -12).