Watch. Practice. Understand. | Lesson 107

Graphing a Rational Function with five easy steps

Watch the matching video: https://www.youtube.com/watch?v=nbkMMb4Q17k

Practice focus: Rational expressions and graphs

Original extra practice matched to the listed lesson topic.

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

01 Simplify $(x^2 - 9)/(x^2 - x - 6)$, retaining restrictions.

02 Find asymptotes of $f(x) = (2x + 1)/(x - 3)$.

03 Find the hole in $f(x) = (x^2 - 4)/(x - 2)$.

04 Solve $1/x + 1/(x + 1) = 3/2$.

Worked answers | Lesson 107

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Practice focus: Rational expressions and graphs

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01 Simplify $(x^2 - 9)/(x^2 - x - 6)$, retaining restrictions.

Factor and cancel $x - 3$: $(x + 3)/(x + 2)$, with $x \neq 3$ and $x \neq -2$.

02 Find asymptotes of $f(x) = (2x + 1)/(x - 3)$.

Denominator zero gives vertical asymptote $x = 3$. Equal degrees give horizontal asymptote $y = 2$.

03 Find the hole in $f(x) = (x^2 - 4)/(x - 2)$.

For $x \neq 2$, $f(x) = x + 2$. Missing point: $(2, 4)$.

04 Solve $1/x + 1/(x + 1) = 3/2$.

Exclude $0, -1$. Multiply by $2x(x + 1)$: $2(2x + 1) = 3x(x + 1)$. Roots: $x = 1$ or $-2/3$; both check.