



Math Virtual Learning

College Algebra

April 20, 2020



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Lesson: April 20, 2020

Objective/Learning Target: Students will identify the graphs of rational expressions and their find asymptotes



Warm Up Activity:

Watch the Khan Academy video and work the practice problems for simplifying Radical Expressions

[KA video simplifying Rational Expressions](#)

[Work the Interactive Khan Academy Problems](#)



Lesson:

Click on the links below for each rational equation property and follow along. We encourage you to have your own sheet of paper out to take notes and practice problems.

Graphing Rational Equations

[Domains](#) [Vertical Asymptotes](#) [Horizontal Asymptotes](#)



Practice: Click on the Khan Academy link, and on your own sheet of paper, simplify the Rational equations like in the warm-up exercises, identify the asymptotes, and choose the correct graph in each of the problems.

[Identifying Graphs of Rational Equations](#)

Additional Practice: (Answer Key at the End)

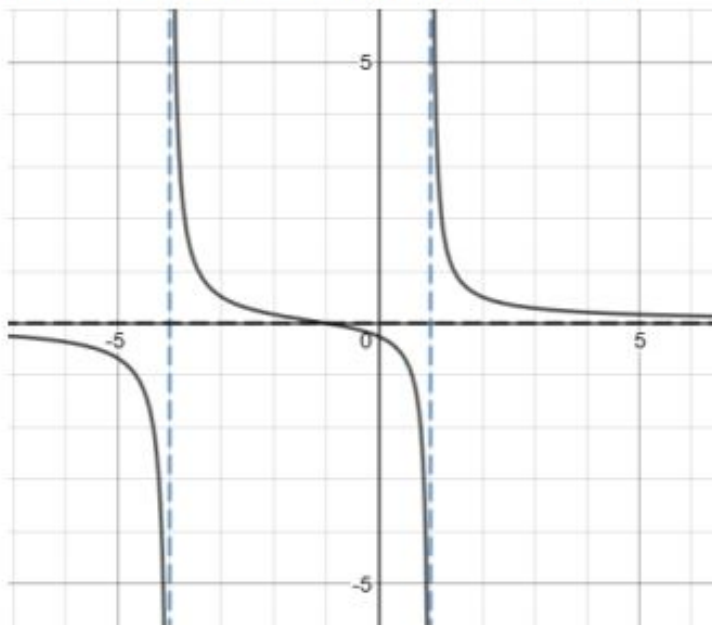
1. Find the vertical asymptote(s) and horizontal asymptote(s) of the function:

$$f(x) = \frac{x-3}{x^2-2x-15}$$

- | | | | |
|----|----------------------------|----|---------------------|
| a. | VA: $x = -3, x = 3, x = 5$ | b. | VA: $y = 0$ |
| | HA: $y = 0$ | | HA: $x = -3, x = 5$ |
| c. | VA: $x = -3, x = 5$ | d. | VA: $x = -3, x = 5$ |
| | HA: $y = 1$ | | HA: $y = 0$ |

Additional Practice:

2. Which graph below represents the rational function:



a. $f(x) = \frac{x+2}{x^2-3x+4}$

b. $f(x) = \frac{x^2+1}{x^2+3x-4}$

c. $f(x) = \frac{x+1}{x^2-5x-4}$

d. $f(x) = \frac{x+1}{x^2+3x-4}$



Additional Practice:

3. Find the vertical asymptotes of $R(x) = \frac{3x^2 - 12x + 3}{6x^2 - 5x - 11}$

Additional Practice:

4. Find the vertical asymptote(s), if any, for $f(x) = \frac{4x-5}{x^2+x-2}$

a. $x = 4, x = -2$

b. $x = -2, x = 1, x = 4$

c. $x = -2, x = 1$

d. No vertical asymptote

Additional Practice:

5. Find the horizontal asymptote(s), if any, for $f(x) = \frac{2x^2 - 1}{x^2 + 3}$

a. $x = 2$

b. $y = \frac{1}{2}$

c. $y = 2$

d. No horizontal asymptote



Answer Key:

1. D

4. C

2. D

5. C

3. $x = -1$ $x = \frac{11}{6}$



Additional Practice:

If you would like more equations to practice, here is a link to extra practice and examples.

[Extra Practice #1](#)

[Extra Practice #2](#)

[Extra Practice #3](#)