

Horizontal Asymptote Exploration:

1. $y = \frac{x-6}{x+5}$ Horizontal Asymptote: $y = 1$

2. $y = \frac{3x+1}{x+4}$ Horizontal Asymptote: $y = 3$

3. $y = \frac{8x^2+x-6}{2x^2-21}$ Horizontal Asymptote: $y = 4$

4. $y = \frac{4x+9x}{x^2-3}$ Horizontal Asymptote: $y = 0$

5. $y = \frac{x^2-13}{x^3+7}$ Horizontal Asymptote: $y = 0$

6. $y = \frac{x-5}{2x^3+3}$ Horizontal Asymptote: $y = 0$

7. $y = \frac{5x^2-4}{x+3}$ Horizontal Asymptote:

8. $y = \frac{-2x^3+5x-8}{x^2+3x-1}$ Horizontal Asymptote: $> \text{NO HA}$

Without using a table or a graph how could you tell from the equation what the horizontal asymptote is or if it even has one?

You must compare the degrees
of the numerator and denominator.

Predict the Horizontal Asymptote for each of the rational functions below.

a. $y = \frac{10x+7}{5x-3}$

$y = 2$

b. $y = \frac{6x^2-5}{2x+3}$

NONE

c. $y = \frac{12x-11}{3x^2-1}$

$y = 0$