



DATE:

SECTION:

OBJECTIVE:

Vertical Asymptotes:

How many can you have?

How do you find V. A.?

Vertical asymptotes are the _____.

EX.

$$\frac{5x+1}{2x^2-x-3}$$

Horizontal Asymptotes:

Oblique Asymptotes:

How many can you have?

How do you find H. A. or O.A.?

1.

2.

3.

EX.

a) $\frac{5x+6}{2x^2-1}$

b) $\frac{x^2+3x-4}{x+1}$

c) $\frac{9x^2-4}{2x^2-x-3}$

x-intercept(s):

How many can you have?

How do you find the x-intercept(s)?

EX.

$$\frac{3x+1}{2x^2-1}$$

y-intercept(s):

How many can you have?

How do you find the y-intercept(s)?

EX.

$$\frac{x^2+3x+2}{4x^2-1}$$

Hole(s):

How many can you have?

How do you find the hole(s)?

EX.

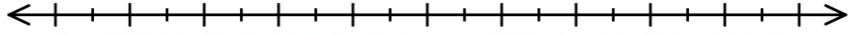
$$\frac{5x^2-5}{x^2+4x+3}$$

Sign Arrays:

How do you make a sign array?

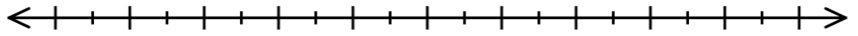
EX.

$$\frac{x+1}{x^2-4}$$

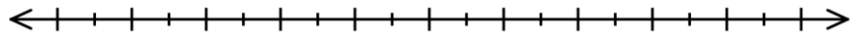


EX. Find the asymptotes, intercepts, and make a sign array for the following function.

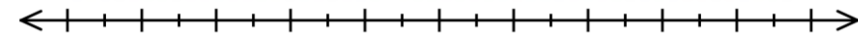
a) $f(x) = \frac{3x+4}{x^2-x-12}$



b) $f(x) = \frac{x^2+3x-4}{x-6}$

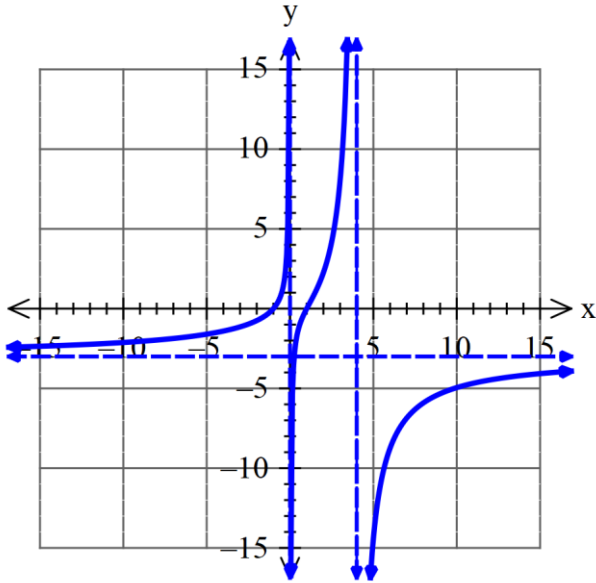


c) $f(x) = \frac{2x-6}{2x^2-5x-3}$



EX. Identify key features of a rational function.

a)



Domain:

Range:

x -intercept(s):

y -intercept:

Increasing:

Decreasing:

Constant:

Vertical Asymptote(s):

Positive:

Negative:

Maximums / minimums:

Symmetry:

End Behavior/Limits:

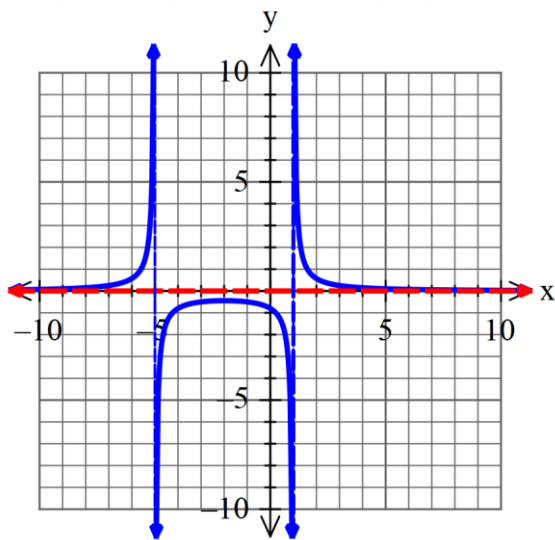
$$\lim_{x \rightarrow -\infty} f(x) = \quad \lim_{x \rightarrow \infty} f(x) =$$

$$\lim_{x \rightarrow 0^-} f(x) = \quad \lim_{x \rightarrow 0^+} f(x) =$$

$$\lim_{x \rightarrow 4^-} f(x) = \quad \lim_{x \rightarrow 4^+} f(x) =$$

Horizontal Asymptote:

b)



Domain:

Range:

x -intercept(s):

y -intercept:

Increasing:

Decreasing:

Constant:

Vertical Asymptote(s):

Positive:

Negative:

Maximums / minimums:

Symmetry:

End Behavior/Limits:

$$\lim_{x \rightarrow \infty} f(x) = \quad \lim_{x \rightarrow 0^-} f(x) =$$

$$\lim_{x \rightarrow -5^-} f(x) = \quad \lim_{x \rightarrow -5^+} f(x) =$$

$$\lim_{x \rightarrow 1^-} f(x) = \quad \lim_{x \rightarrow 1^+} f(x) =$$

Horizontal Asymptote: