

Graphing Rationals Checkpoint

Date _____

Which of the following functions has a horizontal asymptote of $y = 3$?

a. $f(x) = \frac{3x+1}{x+3}$

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

c. $h(x) = \frac{x^2-2x-3}{x+1}$

d. $l(x) = \frac{x+2}{x^2+1}$

Which of the following functions has no horizontal asymptote?

a. $f(x) = \frac{3x+1}{x+3}$

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

c. $h(x) = \frac{x^2-2x-3}{x^2+1}$

d. $l(x) = \frac{x+2}{x^2+1}$

Which rational function has a Vertical Asymptote at $x = 3$ and a Horizontal Asymptote at $y = \frac{1}{4}$?

I. $y = \frac{(x+2)}{4(x+3)}$

II. $y = \frac{(x-2)}{4(x-3)}$

III. $y = \frac{x}{4(x-3)}$

- A. I only B. II only C. II and III only D. III only

Which function of the form $f(x) = \frac{1}{(x-h)} + k$ has a Vertical Asymptote at $x = 3$ and a Horizontal Asymptote at $y = -2$?

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

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

c. $f(x) = \frac{3}{x+3} - 2$

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

Fill in these and you will be able to answer questions dealing with this function on the form.

y-intercept:

x-intercept(s):

$$\frac{x^2 - 16}{x^2 - 7x + 12} = \underline{\hspace{2cm}}$$

Horizontal
Asymptote:Vertical
Asymptote(s):

Domain:

Hole(s):