

Name Partial Key

Date _____

Find the vertical & horizontal asymptotes, x & y intercepts, and holes for the following rational functions.

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

Vert: $x=2$ Hor: $y=0$

x-Int.: none y-int: $(0, -1/2)$

holes: none Slant: none

2. $f(x) = \frac{x^2 - x - 12}{x}$

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

holes: _____ Slant: _____

3. $f(x) = \frac{x^2 - 5x + 6}{x^2 - 4x + 3}$

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

holes: _____ Slant: _____

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

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

holes: _____ Slant: _____

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

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

holes: _____ Slant: _____

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

Vert: $x=-1$ Hor: none

x-Int.: $(0,0)$ $(1,0)$ y-int: $(0,0)$

holes: none Slant: $y=x-2$

$$\begin{array}{r} -1 \ 1 \ -1 \ 0 \\ 1 \ -2 \ 1 \ 2 \\ \hline \end{array}$$

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

Vert: $x=2$ $x=-2$ Hor: $y=1$

x-Int.: $(0,0)$ y-int: $(0,0)$

holes: $(-3, 9/5)$ Slant: none

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

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

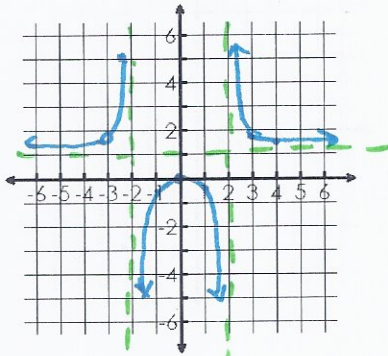
holes: _____ Slant: _____

9. $f(x) = \frac{x^2 - x - 2}{x-1}$

Vert: _____ Hor: _____

x-Int.: _____ y-int: _____

holes: _____ Slant: _____



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

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

