

Algebra 2/Trigonometry
9.2 Graphing Practice #2

Name: _____

Date: _____

Directions: State each discontinuity, and find all intercepts. Then sketch a graph.

1.) $f(x) = \frac{x^2 + 7x + 12}{x^2 + 11x + 28}$ $\frac{(x+3)(x+4)}{(x+4)(x+7)}$

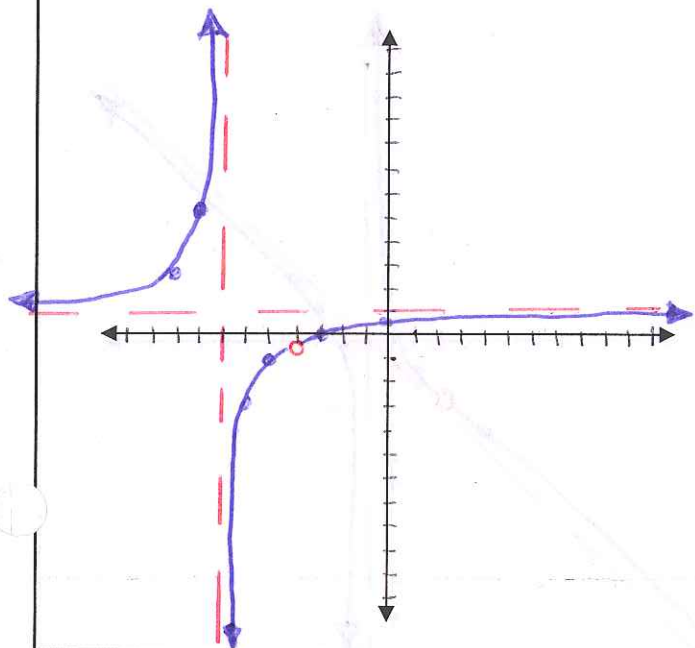
$f(x) = \frac{x+3}{x+7}$

X	Y
-5	-1
-6	-3
-7	
-8	5
-9	3

Hole(s): $(-4, -1/3)$ V.A.: $x = -7$

H.A.: $y = 1$ S.A.: none

x-int.: $(-3, 0)$ y-int.: $(0, 3/7)$



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

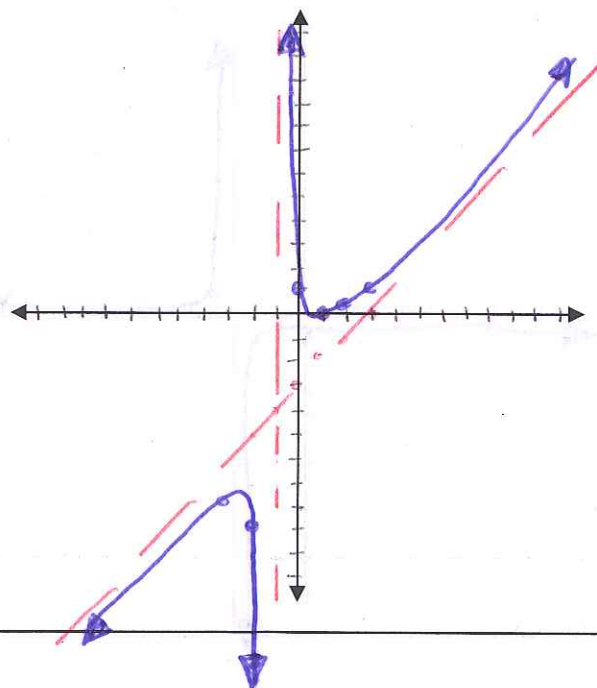
$\begin{array}{r} 1-21 \\ \downarrow -13 \\ 1-3 \end{array}$

X	Y
-3	-8
-2	-9
-1	
2	1/3
3	1

Hole(s): none V.A.: $x = -1$

H.A.: none S.A.: $y = x - 3$

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



Directions: State each discontinuity, and find all intercepts. Then sketch a graph.

3.) $f(x) = \frac{x+8}{x^2+5x-24} = \frac{\cancel{(x+8)}}{\cancel{(x+8)}(x-3)}$

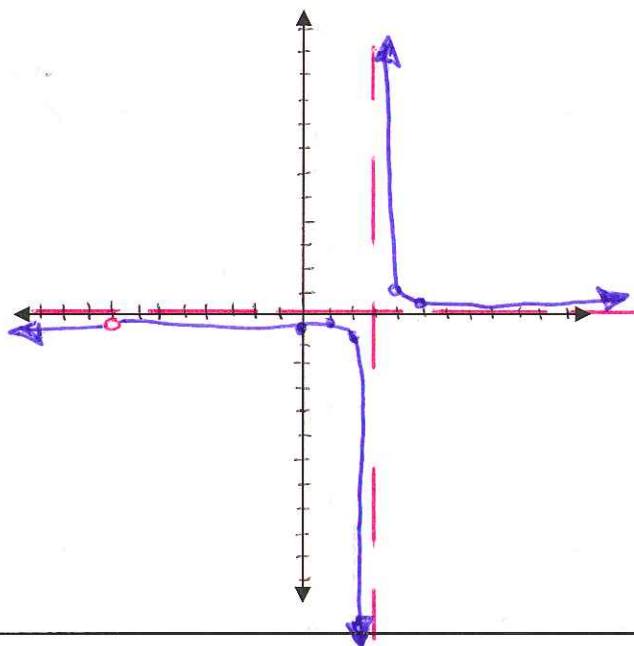
$f(x) = \frac{1}{x-3}$

X	Y
1	-1/2
2	-1
3	
4	1
5	1/2

Hole(s): $(-8, -1/11)$ V.A.: $x=3$

H.A.: $y=0$ S.A.: none

x-int.: none y-int.: $(0, -1/3)$



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

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

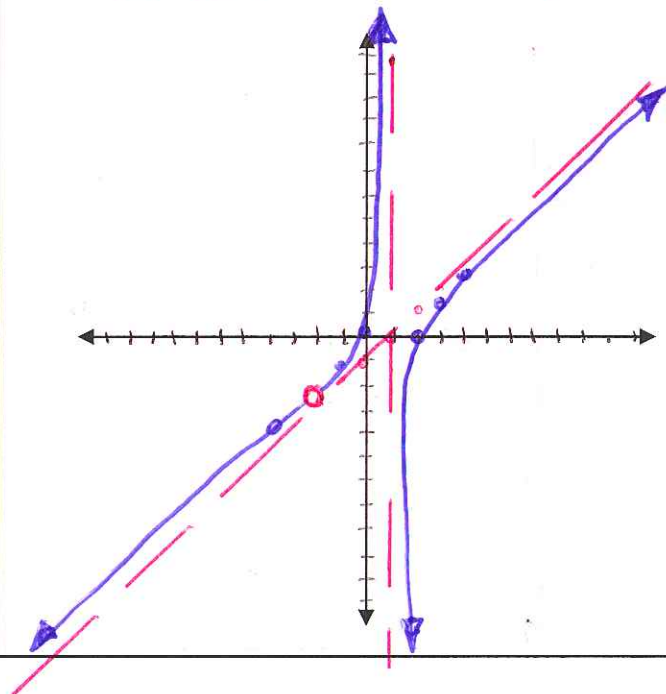
$\begin{array}{r} 1 \quad -2 \quad 0 \\ \downarrow \quad 1 \quad -1 \\ 1 \quad -1 \quad X \end{array}$

X	Y
-3	$-3^3/4$
-1	$-1^1/2$
3	$1^1/2$
4	$2^2/3$

Hole(s): $(-2, -2^2/3)$ V.A.: $x=1$

H.A.: none S.A.: $y=x-1$

x-int.: $(0,0)(2,0)$ y-int.: $(0,0)$



Directions: State each discontinuity, and find all intercepts. Then sketch a graph.

5.)

$$f(x) = \frac{x^2 + x + 3}{x - 1} \quad \leftarrow \text{* doesn't factor}$$

$$\frac{-1 \pm \sqrt{1 - 4(1)(3)}}{2(1)}$$

$$\frac{-1 \pm \sqrt{1 - 12}}{2} = \frac{-1 \pm \sqrt{-11}}{2}$$

$$\frac{-1 \pm i\sqrt{11}}{2} \quad * i$$

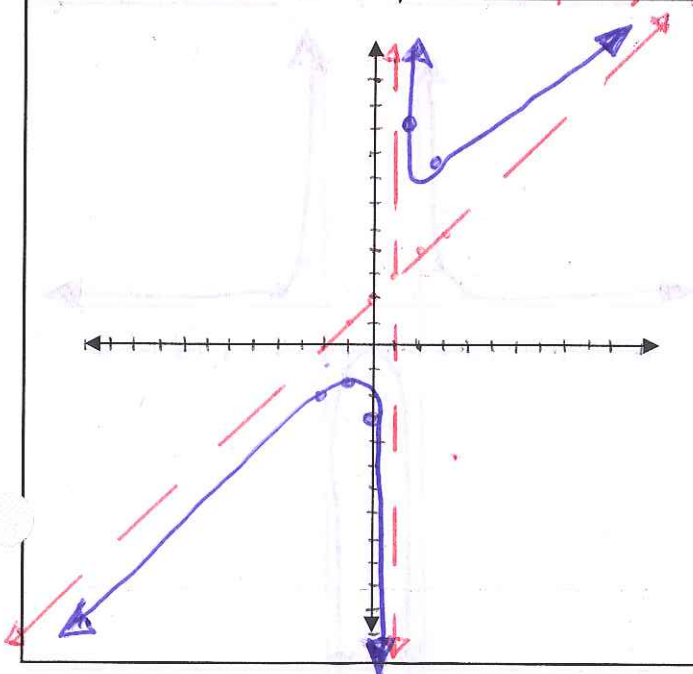
$$\begin{array}{r} 1 \quad 1 \quad 3 \\ \downarrow \quad 1 \quad 2 \\ 1 \quad 2 \quad \cancel{3} \end{array}$$

X	Y
3	7 1/2
2	9
-1	-1 1/2
-2	-1 2/3

Hole(s): none V.A.: X = 1

H.A.: none S.A.: Y = X + 2

x-int.: none y-int.: (0, -3)



6.)

$$f(x) = \frac{x^2 + x - 6}{(x - 2)(x^2 + 5x - 36)}$$

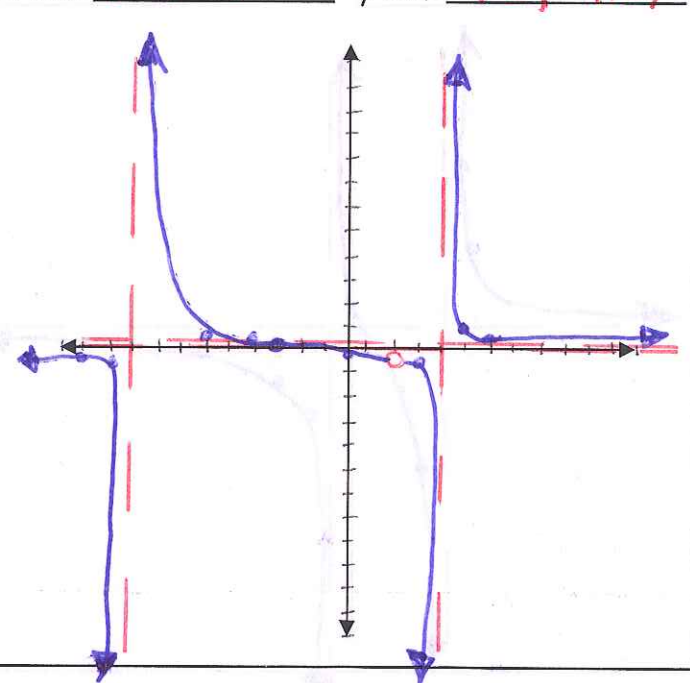
$$\frac{(x + 3)(x - 2)}{(x - 2)(x + 9)(x - 4)}$$

X	Y
-11	-4 1/15
-10	-1 1/2
-6	1/10
-4	1/40
3	-1/2
5	4/7
6	3/10

Hole(s): (2, -5/22) V.A.: X = -9, X = 4

H.A.: Y = 0 S.A.: none

x-int.: (-3, 0) y-int.: (0, -1/12)



Directions: State each discontinuity, and find all intercepts. Then sketch a graph.

7.) $f(x) = \frac{x^2 - 6x - 7}{x^2 + 3x - 4} = \frac{(x-7)(x+1)}{(x+4)(x-1)}$

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

X	Y
-6	$4 \frac{9}{14}$
-5	8
-3	-5
-2	$-1 \frac{1}{2}$
2	$-2 \frac{1}{2}$
3	$-1 \frac{1}{7}$

X	Y
-4	$2 \frac{2}{3}$
-3	$3 \frac{3}{5}$
-1	$-2 \frac{1}{3}$
0	0*
1	$-2 \frac{1}{3}$
3	$3 \frac{3}{5}$
4	$2 \frac{2}{3}$

Hole(s): none V.A.: $x = -4, x = 1$

Hole(s): none V.A.: $x = 2, x = -2$

H.A.: $y = 1$ S.A.: none

H.A.: $y = 2$ S.A.: none

x-int.: $(7, 0)(-1, 0)$ y-int.: $(0, \frac{7}{4})$

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

