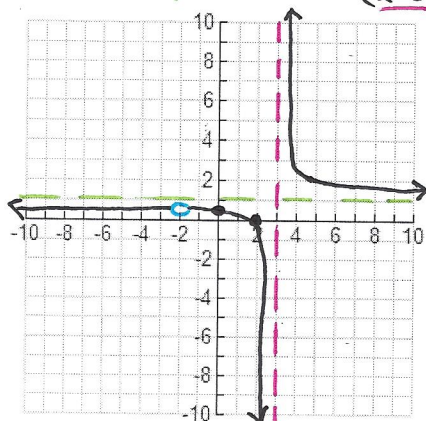


Graph each function.

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



Domain: $x \neq 3, -2$

Holes: $x = -2$

VA: $x = 3$

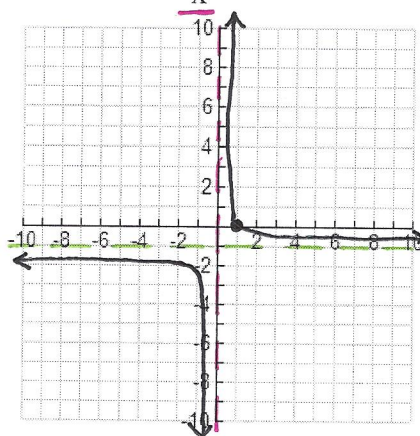
HA: $y = 1$

SA: none

X-int: $(2, 0)$

Y-int: $(0, 2/3)$

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



Domain: $x \neq 0$

Holes: none

VA: $x = 0$

HA: $y = -1$

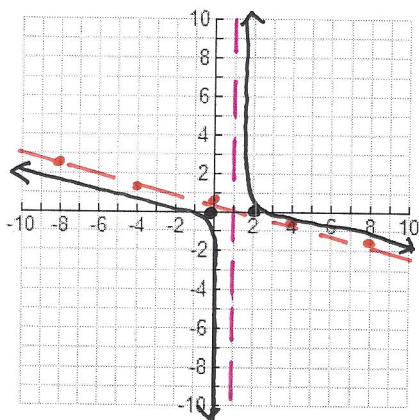
SA: none

X-int: $(1, 0)$

Y-int: $(0, 1/3)$

none!

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



Domain: $x \neq 1$

Holes: none

VA: $x = 1$

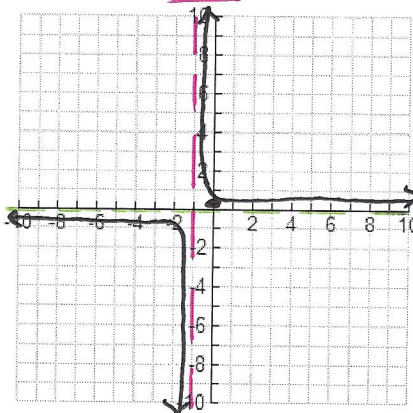
HA: none

Slant: $y = -1/4x + 1/4$

X-int: $(0, 0)$ & $(2, 0)$

$$\begin{array}{r} -1/4x + 1/4 \\ \hline -4x + 4 \quad | \quad x^2 - 2x + 0 \\ \quad \quad \quad | \quad x^2 - x \\ \quad \quad \quad | \quad -x + 0 \\ \quad \quad \quad | \quad -x + 1 \\ \quad \quad \quad | \quad \quad \quad -1 \end{array}$$

$$4. f(x) = \frac{1}{3x+3}$$



Domain: $x \neq -1$

Holes: none

VA: $x = -1$

HA: $y = 0$

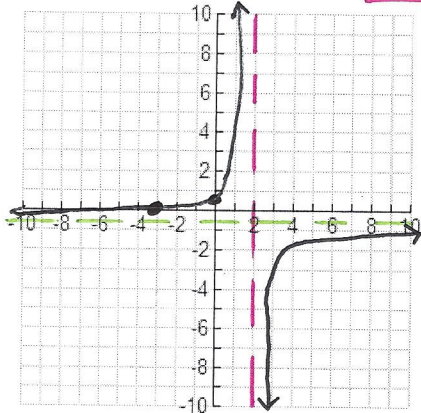
SA: none

X-int: none

Y-int: $(0, 1/3)$

Accelerated Geometry CC
13.4 Practice Problems

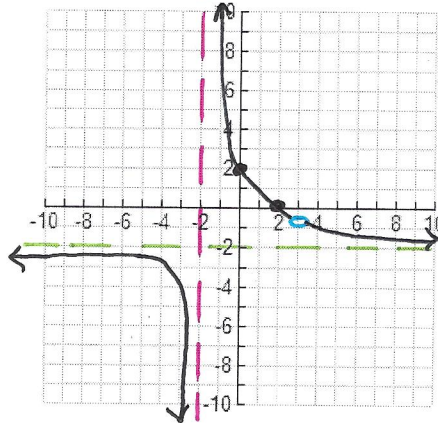
$$5. f(x) = \frac{x+3}{-3x+6} = \frac{x+3}{-3(x-2)}$$



Domain: $x \neq 2$
 Holes: none
 VA: $x = 2$
 HA: $y = -1/3$
 SA: none
 x-int: $(-3, 0)$
 y-int: $(0, 1/2)$

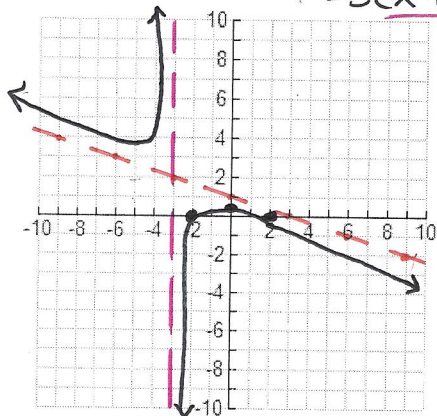
Name: _____
 Date: _____ Period: _____

$$6. f(x) = \frac{-2(x^2-5x+6)}{-2x^2+10x-12} = \frac{-2(x-3)(x-2)}{(x-3)(x+2)}$$



Domain: $x \neq 3, -2$
 Holes: $x = 3$
 VA: $x = -2$
 HA: $y = -2$
 SA: none
 x-int: $(2, 0)$
 y-int: $(0, 2)$

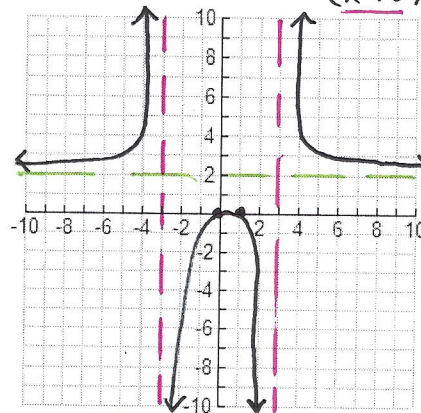
$$7. f(x) = \frac{x^2-4}{-3x-9} = \frac{(x-2)(x+2)}{-3(x+3)}$$



Domain: $x \neq -3$
 Holes: none
 VA: $x = -3$
 HA: none
 SA: $y = -1/3x + 1$
 x-int: $(2, 0)$ & $(-2, 0)$
 y-int: $(0, 1/9)$

$$\begin{array}{r} -1/3x + 1 \\ \hline -3x - 9 \mid x^2 + 0x - 4 \\ \quad x^2 + 3x \\ \quad \quad -3x - 4 \\ \quad \quad \quad -3x - 9 \\ \quad \quad \quad \quad 5 \end{array}$$

$$8. f(x) = \frac{2x^2-2x}{x^2-9} = \frac{2x(x-1)}{(x+3)(x-3)}$$



Domain: $x \neq 3, -3$
 Holes: none
 VA: $x = 3$ & $x = -3$
 HA: $y = 2$
 SA: none
 x-int: $(0, 0)$ & $(1, 0)$
 y-int: $(0, 0)$