Review 3.4-3.6
Honors Algebra 2 with Trig

1. State the end behavior of each of the following:

a. $f(x) = 5x^3 - 2x + 9$

$x \to \infty \ f(x) \to$ _____

$x \to -\infty \ f(x) \to$ _____

b. $f(x) = -x^{100} + 4x^6 - 3x + 8$

$x \to \infty \ f(x) \to$ _____

$x \to -\infty \ f(x) \to$ _____

c. $f(x) = -x^9 + x^8 - 2x^5 + 10$

$x \to \infty \ f(x) \to$ _____

$x \to -\infty \ f(x) \to$ _____

d. $f(x) = x^8 - 4x^2 - 7x^{15}$

$x \to \infty \ f(x) \to$ _____

$x \to -\infty \ f(x) \to$ _____

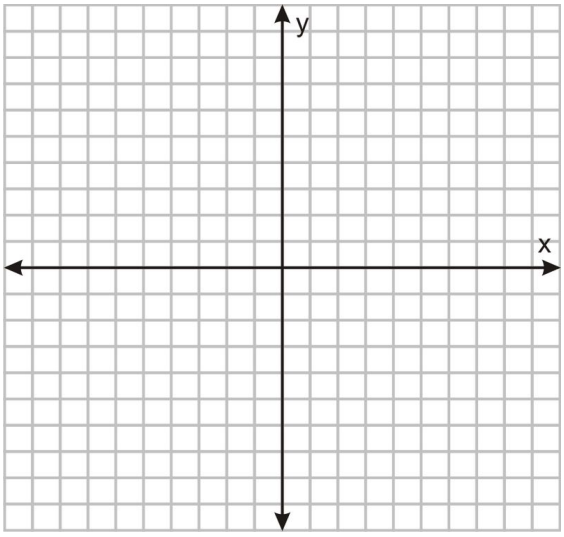
e. $f(x) = (x + 3)(2x - 5)(x + 6)$

$x \to \infty \ f(x) \to$ _____

$x \to -\infty \ f(x) \to$ _____

2. Graph the following functions and state the key characteristics below:

a. $f(x) = -x^4 + x^3 + 2x^2$

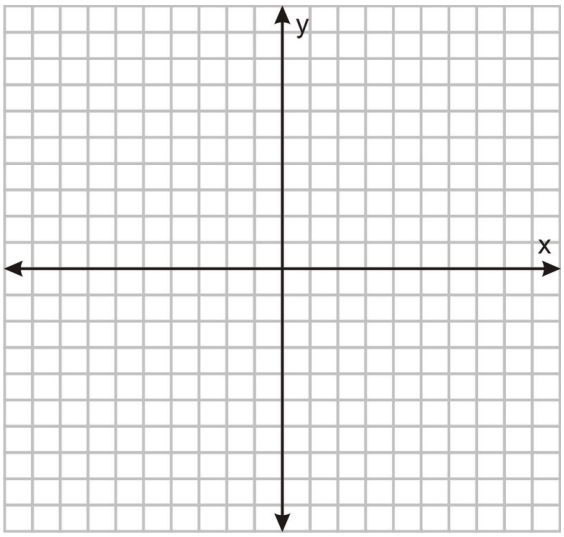


End Behavior: _____

X-intercepts: _____

Y-intercepts: _____

b. $f(x) = (x-2)(x+1)^2$

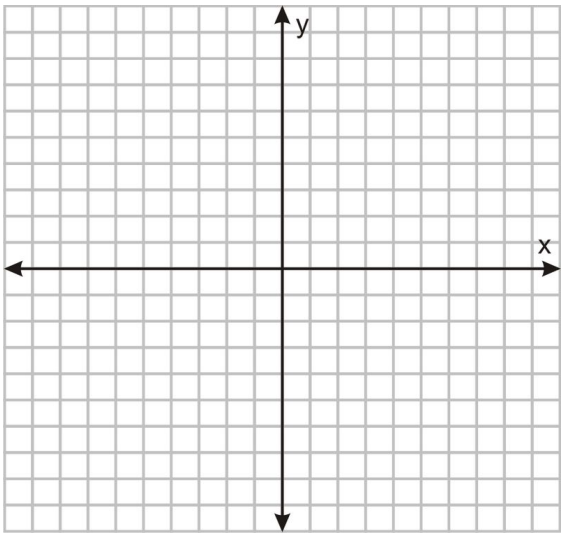


End Behavior: _____

X-intercepts: _____

Y-intercepts: _____

c. $f(x) = x^4 - 2x^3 + x^2 - 8x - 12$



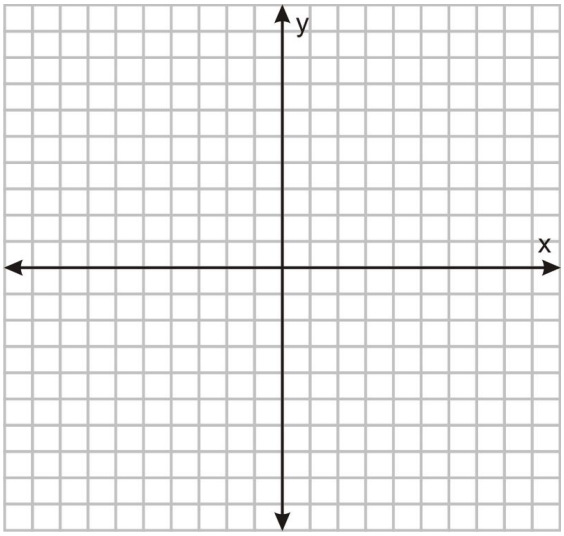
End Behavior: _____

X-intercepts: _____

Y-intercepts: _____

3. Graph the following functions and state the key characteristics below:

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



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

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

Hole(s): _____

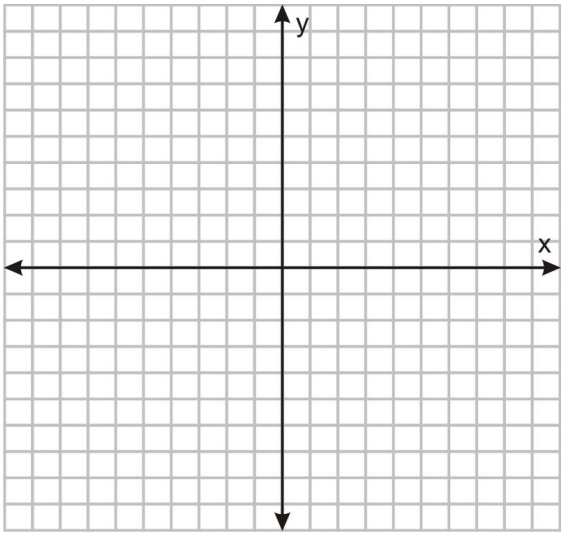
Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

Slant Asymptote EQUATION(S):
_____

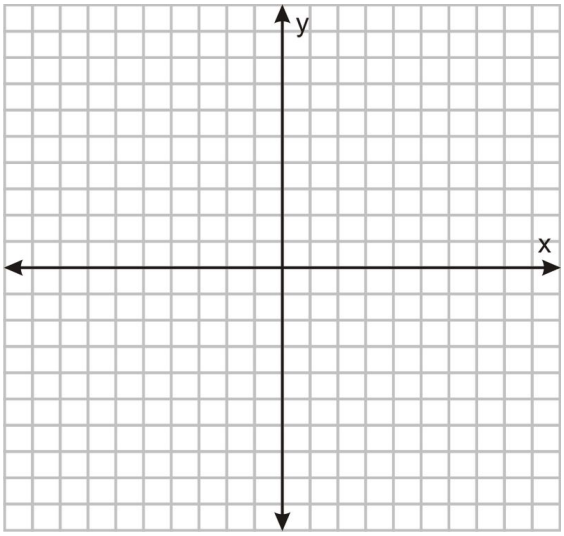
X-intercepts: _____

Y-intercepts: _____



Domain: _____

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



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

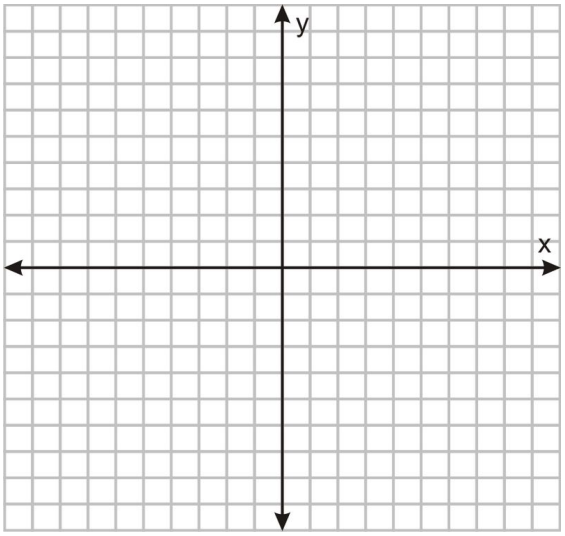
Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

d. $f(x) = \frac{x^3+4x^2-21x}{x^2+4x-21}$



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

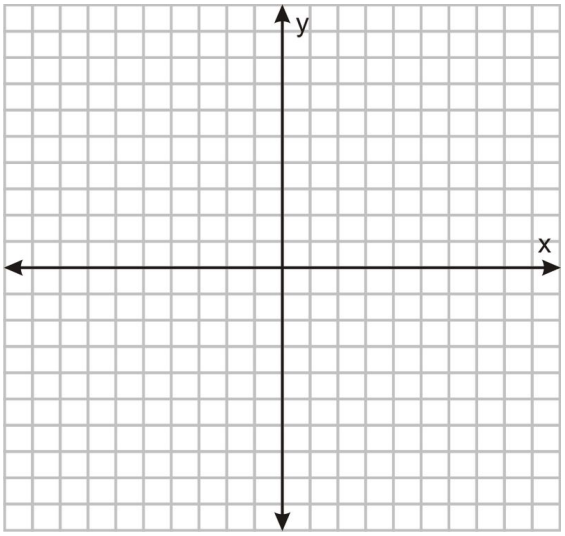
Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

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



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

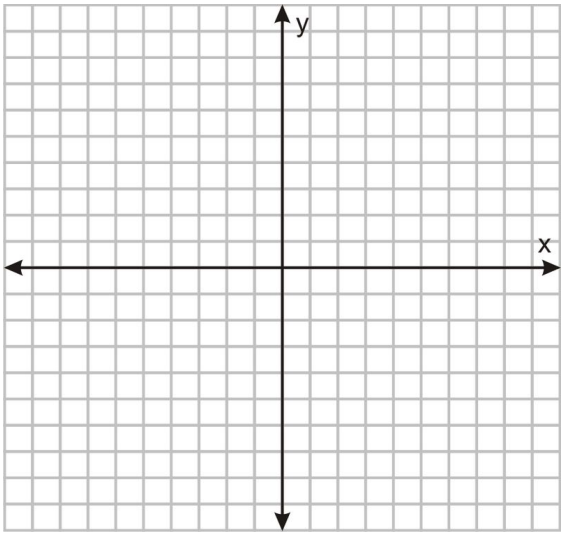
Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

f. $f(x) = \frac{x^2+x-2}{(x+2)(x^2-2x-15)}$



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

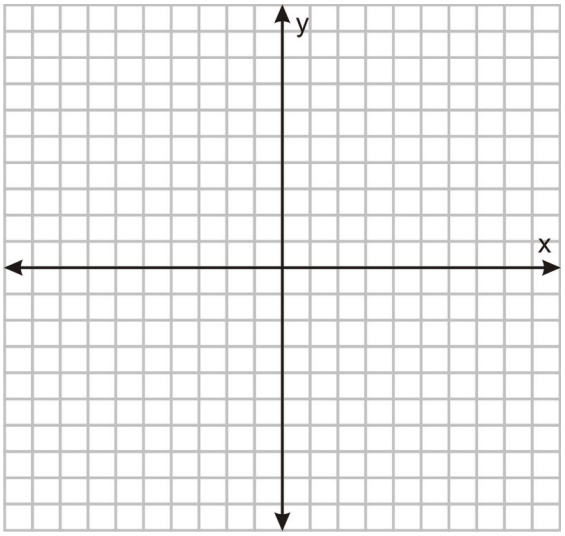
Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

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



Hole(s): _____

Vertical Asymptote(s) EQUATION(S): _____

Horizontal Asymptote(s) EQUATION(S):_____

Slant Asymptote EQUATION(S):
_____

X-intercepts: _____

Y-intercepts: _____

Domain: _____

4. The frequency of a vibrating string varies inversely as its length. A string 3 feet long vibrates 175 cycles per second. Find the frequency of a 5 foot string.

5. The force of the wind blowing on a vertical surface varies jointly as the area of the surface and the square of the velocity. If a wind blowing at 50mph exerts a force of 75 pounds on a surface of 500 ft^2, how much force will a wind of 75 mph place on a surface of 10 ft^2?

6. The time required to process a shipment of goods at Wal-Mart varies directly with the number of items in the shipment and inversely with the number of workers assigned. If 15,000 items can be processed by 8 workers in 10 hours, then how long would it take 12 workers to process 20,000 items?

7. A Body Mass Index, or BMI is a measure of a person's weight relative to their height and gives an approximation of total body fat. A BMI (rounded to the nearest whole number) in low 20's is desirable. BMI varies directly as a person's weight in pounds and inversely as the square of the person's height in inches. A person who weighs 140 points and is 70 inches tall has a BMI of 20. Find the BMI of a person who weighs 165 pounds and is 71 inches tall.