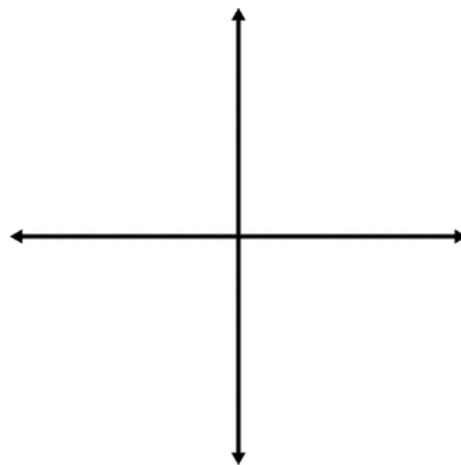


1. $y = \frac{1}{x}$

Restrictions:

x	y

Graph:

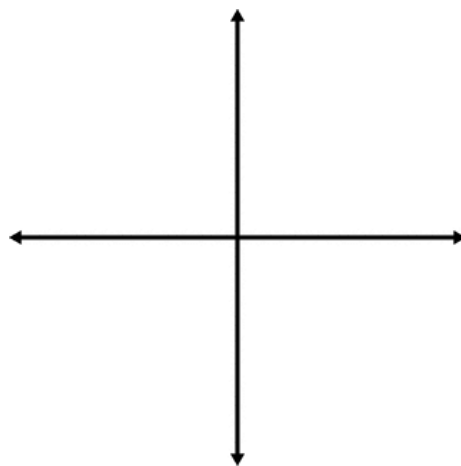
**Asymptote:**

2. $y = \frac{1}{x+1}$

Restrictions:

x	y

Graph:

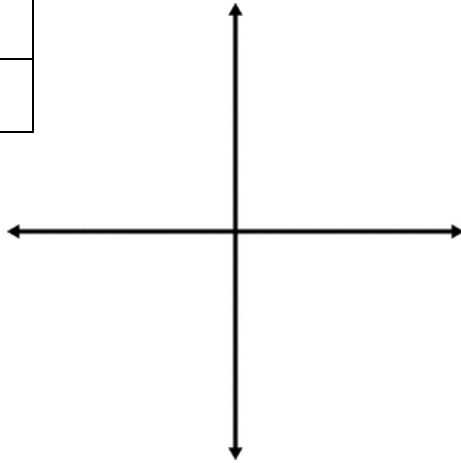


3. $y = \frac{x+1}{(x+1)(x+2)}$

Restrictions:

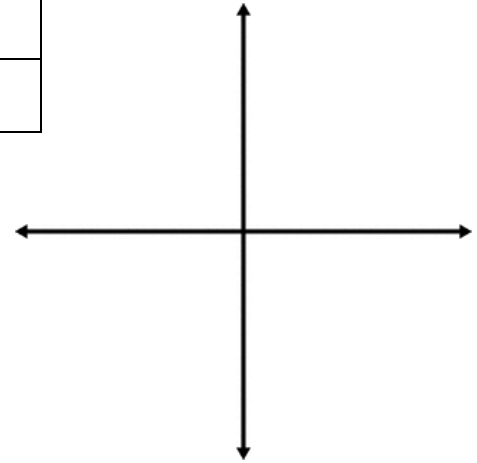
Graph before simplifying:

x	y



Graph after simplifying:

x	y

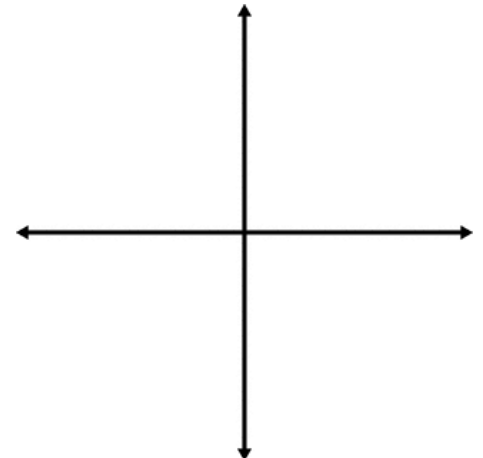


4. $y = \frac{x^2 + 8x + 15}{x^2 + 3x - 10}$

Restrictions:

Graph:

x	y

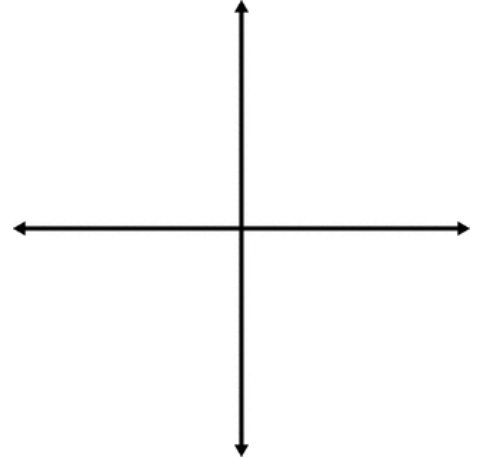


$$5. y = \frac{x^2 + 6x + 8}{x^2 + x - 6}$$

Restrictions:

x	y

Graph:



CONCLUSIONS:

• Restrictions of the function are represented graphically as a _____ if they cancel out when simplifying

• Restrictions of the function are represented graphically as a _____ if they are not cancelled out.

Steps for identifying asymptotes and holes:

- 1.
- 2.
- 3.
4. Identify whether the restrictions were

OR

Practice: Identify the vertical asymptotes and/or holes that would appear on the graph of each function. If you'd like, verify your answers by graphing.

1. $y = \frac{3}{x+4}$

2. $y = \frac{x+3}{x^2+7x+12}$

3. $y = \frac{x^2+7x+10}{x^2-x-6}$

4. $y = \frac{x^2-4}{x^2-6x+5}$

5. $y = \frac{10x+3}{2x-4}$