

SM3-A HW #4-5 (reciprocal function)

1)  $y = \frac{x + 1}{x^2 - 9x - 10}$

- (a) What are the excluded values?
- (b) Simplify the equation.
- (c) What is the horizontal asymptote?
- (d) What is the vertical asymptote?

2) Given the equation:  $y = \frac{1}{x - 1} - 2$  :

- a) what is the horizontal asymptote?
- b) what is the vertical asymptote?
- c) what is the domain?
- d) what is the range?

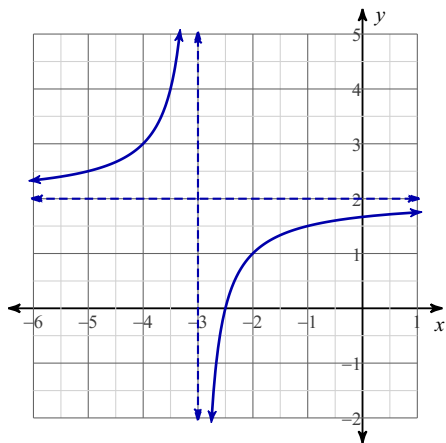
3) Given the equation:  $y = \frac{5}{x + 3} + 4$  :

- a) what is the horizontal asymptote?
- b) what is the vertical asymptote?
- c) what is the domain?
- d) what is the range?

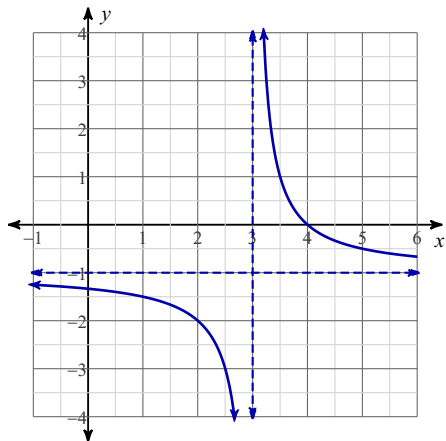
4) Given the equation:  $y = \frac{2}{x - 2} + 6$  :

- a) what is the horizontal asymptote?
- b) what is the vertical asymptote?
- c) what is the domain?
- d) what is the range?

5) The following is a transformation of the function:  $y = \frac{1}{x}$ . What is the equation of the graph?



6) The following is a transformation of the function:  $y = \frac{1}{x}$ . What is the equation of the graph?



**Simplify each expression.**

$$7) \frac{4x}{2x^2y} + \frac{5x}{3xy^2}$$

$$8) \frac{3}{x-2} + \frac{2}{x+1}$$

$$9) \frac{\frac{x}{2} + \frac{2}{x}}{\frac{5}{4}}$$

$$10) \frac{n+3}{n+5} \div \frac{2n^2(n+3)}{(n+8)(n+5)}$$