

SM3-A HW #4-7 (holes in graph of the reciprocal function)

1) $f(x) = \frac{(x-9)(x-2)}{(x+1)(x-2)}$

- a) equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) Holes?
- f) y-intercept?

2) $f(x) = \frac{2(x-5)(x+3)}{(x+3)(x-1)}$

- a) Equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) holes?
- f) y-intercept?

3) $f(x) = \frac{x^2 + 3x - 10}{x^2 + x - 20}$

- a) Equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) holes?
- f) y-intercept?

4) $f(x) = \frac{4x^2 + 4x - 24}{x^2 - 4}$

- a) Equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) holes?
- f) y-intercept?

5) $f(x) = \frac{3x + 6}{x + 12}$

- a) Equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) holes?
- f) y-intercept?

6) $y = \frac{5x - 15}{x - 1}$

- a) Equation in standard reciprocal form?
- b) Vertical Asymptote?
- c) Horizontal Asymptote?
- d) x-intercept?
- e) holes?
- f) y-intercept?

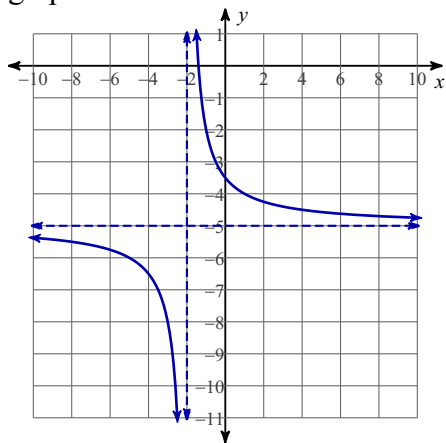
7) Given the equation: $y = -\frac{2}{x + 3} - 1$:

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

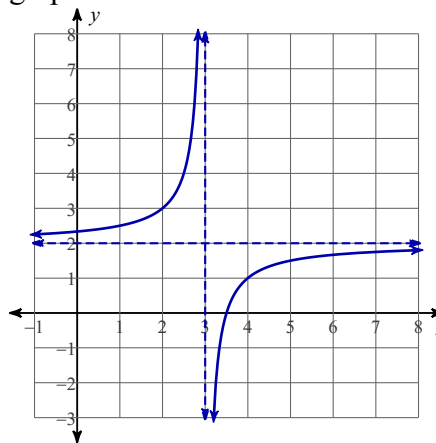
8) Given the equation: $y = \frac{3}{2x + 5} + 7$:

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

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



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Simplify each expression.

$$11) \frac{3m}{2} + \frac{6n}{2m}$$

$$12) \frac{5b}{b-3} + \frac{4}{b+4}$$

Divide

$$13) (10x^2 + 90x - 99) \div (x + 10)$$

$$14) (5r^2 - 18r - 4) \div (r - 4)$$