

Directions: Find the zeros for the following rational functions.

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

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

3. $y = \frac{(x-3)(x-6)}{(x-6)(x-2)}$

1. Zeros: $x =$ _____

2. Zeros: $x =$ _____

3. Zeros: $x =$ _____

4. $h(x) = \frac{x^2 - x - 20}{x^2 + x - 20}$

5. $f(x) = \frac{x^2 - 9}{x^2 - 2x - 15}$

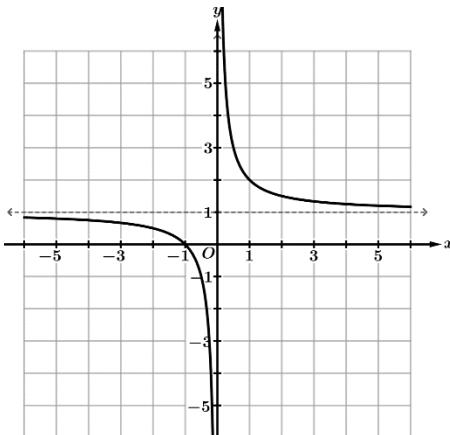
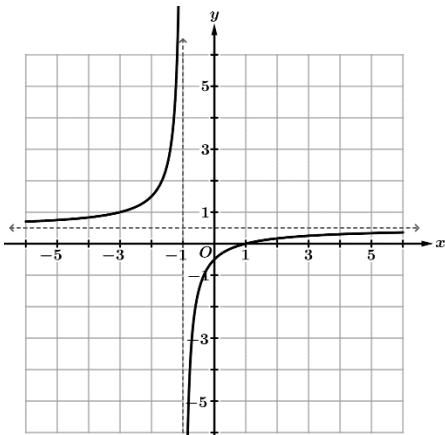
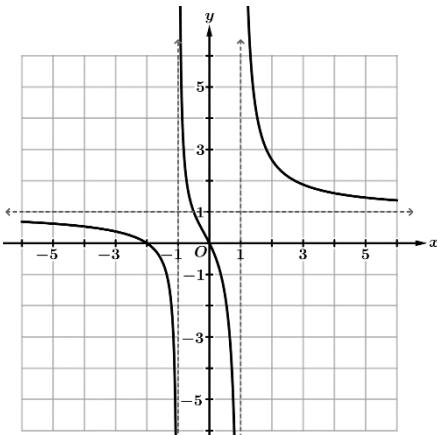
6. $g(x) = \frac{x^3 - 4x^2 - 32x}{2x^2 + 7x - 4}$

4. Zeros: $x =$ _____

5. Zeros: $x =$ _____

6. Zeros: $x =$ _____

Directions: The graphs of several rational functions are given below. Use the graphs to solve the following inequalities.

Graph of f Graph of g Graph of h

7. $f(x) > 0$

8. $g(x) \leq 0$

9. $h(x) \geq 0$

Directions: Solve the following inequalities. Write your answers using interval notation.

10. $\frac{x+2}{x-1} < 0$

11. $\frac{x-3}{x+5} > 0$

Directions: Solve the following inequalities. Write your answers using interval notation.

$$12. \frac{-3}{x-1} \geq 0$$

$$13. \frac{x}{(x-4)^2} < 0$$

$$14. \frac{(x-1)(x+6)}{x+2} \leq 0$$

$$15. \frac{(2x-3)(x+4)}{x^2} \geq 0$$

$$16. \frac{x^2-9}{x+2} > 0$$

$$17. \frac{x^2-3x-10}{x+8} < 0$$

$$18. \frac{x^2-6x+9}{x^2+1} > 0$$

$$19. \frac{3x^2-2x-8}{x+1} \leq 0$$