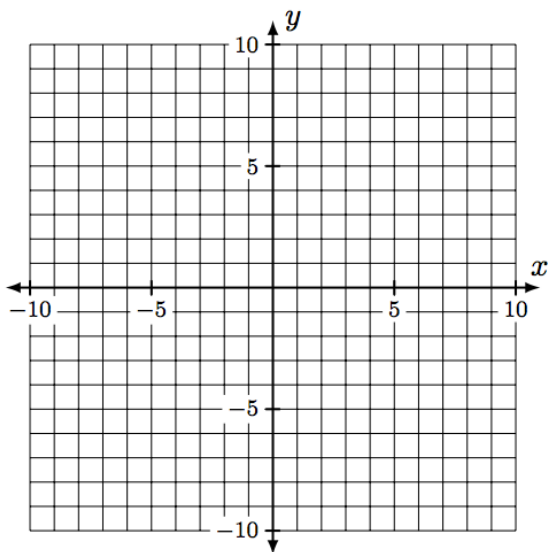


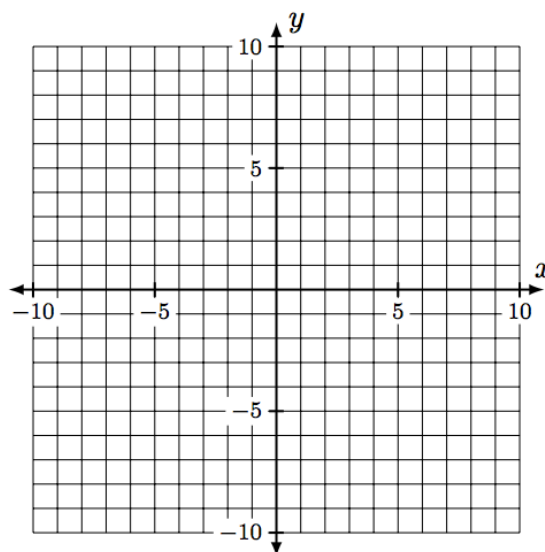
Unit 4 Review

Graph each rational function, mark all asymptotes and anchor points.

1. $f(x) = \frac{1}{x-2} + 4$



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



For each rational function determine **as many features** as you can without graphing. Be as specific as you can.

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

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

Perform the indicated operation, make sure all answers are fully simplified. Show all steps.

$$5. \quad \frac{n^2+6n+5}{n+1} \cdot \frac{n^2+11n+28}{n^2+9n+20}$$

$$6. \quad \frac{96}{38x} \cdot \frac{25x^2}{45x}$$

$$7. \quad \frac{4x}{x-6} \div \frac{2x^2}{8x-48}$$

$$8. \quad \frac{x^2+9x+20}{x^2+6x+5} \div \frac{x+5}{x^2-x-2}$$

$$9. \quad \frac{7}{3x} + \frac{4}{5x^2}$$

$$10. \quad \frac{x-1}{x-2} - \frac{x^2+4x-4}{x^2+4x-12}$$

$$11. \quad \frac{x^2+4x+1}{x^2-4x-21} + \frac{x+2}{x-7}$$

$$12. \quad \frac{4x}{x^2+4x-5} - \frac{5}{x^2+3x-4}$$

Solve each rational equation, check for extraneous solutions.

$$13. \quad \frac{x+5}{x^2+x} = \frac{1}{x^2+x} - \frac{x-6}{x+1}$$

$$14. \quad \frac{1}{x} = \frac{6}{5x} + 1$$

$$15. \quad 1 + \frac{x^2 - 5x - 24}{3x} = \frac{x - 6}{3x}$$

$$16. \quad \frac{3}{x^2 + 5x + 6} - \frac{x - 6}{x^2 + 5x + 6} = \frac{1}{x + 3}$$

$$17. \quad \frac{3}{x - 5} - \frac{20}{x^2 - 25} = \frac{2}{x + 5}$$

$$18. \quad \frac{x + 5}{x^2 - 2x} - 1 = \frac{1}{x^2 - 2x}$$