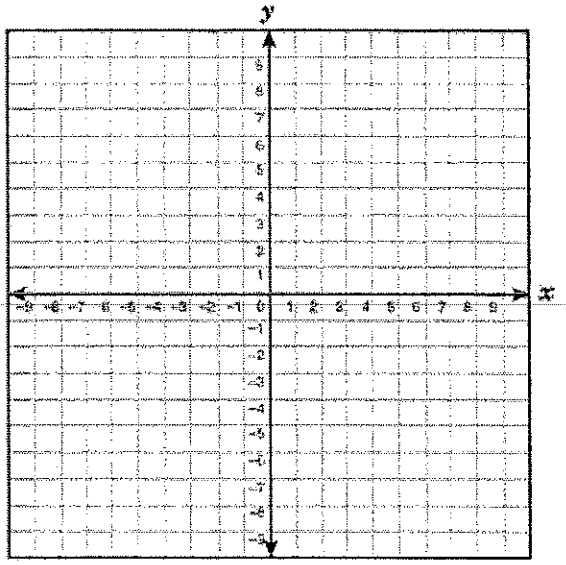
Algebra 2 – Graphing Rational Functions Name _____

Graph the function, including asymptotes. Identify the domain and range.

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

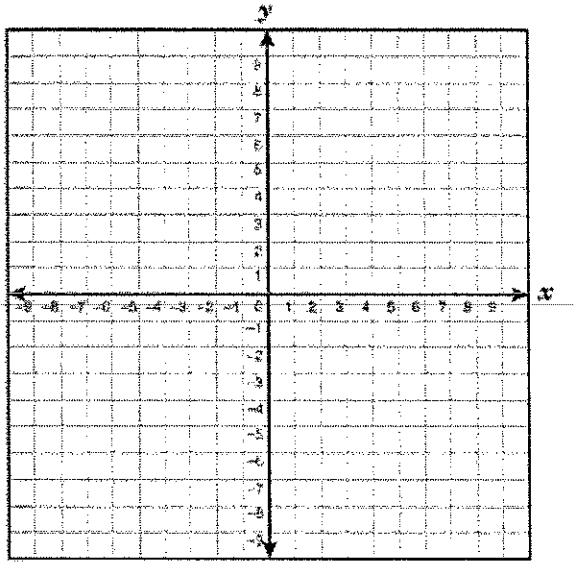


Domain:

Range:

Transformation:

2. $y = \frac{3}{x}$

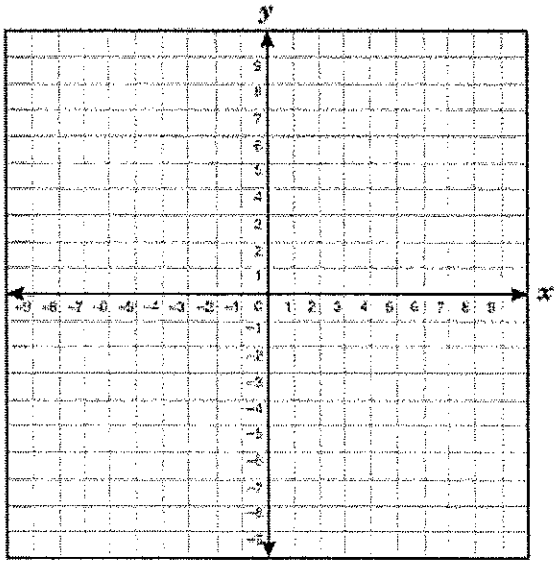


Domain:

Range:

Transformation:

3. $y = \frac{.5}{x}$

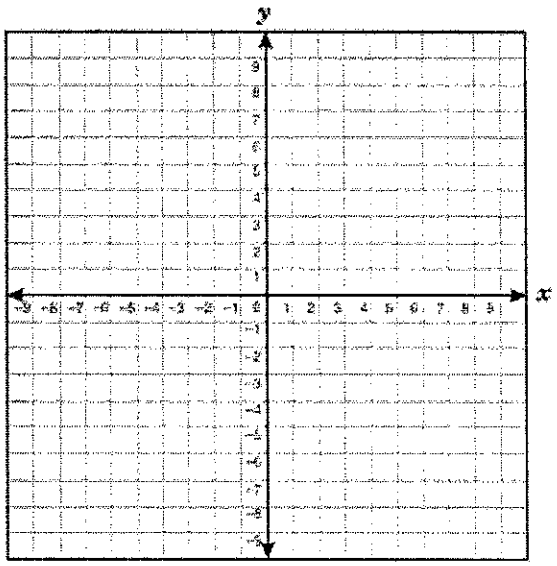


Domain:

Range:

Transformation:

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



Domain:

Range:

Transformations:

LESSON 11.6

NAME _____ DATE _____

Practice A

For use with pages 676–682

Simplify the expression.

1. $\frac{x}{3} + \frac{2x}{3}$
2. $\frac{3x}{8} - \frac{10x}{8}$
3. $\frac{4x}{7} - \frac{x}{7}$
4. $\frac{9}{2x} + \frac{4}{2x}$
5. $\frac{7}{5x} + \frac{8}{5x}$
6. $\frac{9}{2x} - \frac{5}{2x}$
7. $\frac{4}{x+4} + \frac{6}{x+4}$
8. $\frac{-3}{x+3} - \frac{3}{x+3}$
9. $\frac{x+2}{x+6} + \frac{6}{x+6}$
10. $\frac{x+5}{x+5} + \frac{4x}{x+5}$
11. $\frac{2x+4}{5x+4} - \frac{x+1}{4+5x}$
12. $\frac{x+4}{4-x} - \frac{12}{4-x}$

Find the least common denominator for each pair of rational expressions.

13. $\frac{x}{5}, \frac{7x}{4}$
14. $\frac{8}{2x}, \frac{6}{x}$
15. $\frac{3x}{x+1}, \frac{11}{x}$
16. $\frac{x+9}{x+2}, \frac{5x}{x+3}$
17. $\frac{5}{x+4}, \frac{9}{x-4}$
18. $\frac{4}{2x-6}, \frac{10}{x-3}$

Simplify the expression.

19. $\frac{x}{3} + \frac{3x}{4}$
20. $\frac{3x}{5} + \frac{x}{2}$
21. $\frac{4x}{3} - \frac{x}{2}$
22. $\frac{4}{2x} - \frac{3}{x}$
23. $\frac{5}{2x} + \frac{7}{4x}$
24. $\frac{5}{x} - \frac{3}{x^2}$
25. $\frac{1}{5x+10} + \frac{3}{x+2}$
26. $\frac{6}{x+2} - \frac{1}{x+3}$
27. $\frac{7}{x-1} + \frac{2}{3x-3}$
28. $\frac{8}{x-2} - \frac{4}{x+2}$
29. $\frac{15x}{x^2+4x} - \frac{3}{x+4}$
30. $\frac{x+1}{x+6} + \frac{x-5}{2x+1}$

Cabin Cruiser **In Exercises 31–33, use the following information.**

A cabin cruiser moves through still water at x miles per hour. It travels 45 miles upstream against a current of 3 miles per hour and then returns with the current. The rate upstream is $x - 3$ because the boat moves against the current, and the rate downstream is $x + 3$ because the boat moves with the current.

31. Write an expression for the total time for the round trip.
32. Write your answer to Exercise 31 as a single rational expression.
33. Use your answer to Exercise 32 to find out how long the round trip will take if the cabin cruiser travels at the given rate. Round your answers to the nearest tenth.

Rate	5 mph	10 mph	15 mph	20 mph
Time	?	?	?	?