

5-10. Simplify each expression below. Assume that the denominator in part (b) is not equal to zero.

a. $(x^{3})(x^{2})$ a. $\frac{y^{5}}{y^{2}}$ b. n^{-1} c. $(4x^{2})^{3}$

5-12. Jill is studying a strange bacterium. When she first looks at the bacteria, there are 1000 cells in her sample. The next day, there are 2000 cells. Intrigued, she comes back the next day to find that there are 4000 cells!

- a. Should the graph of this situation be linear or curved?
- **b.** Create a table and graph for this situation. The inputs are the days that have passed after she first began to study the sample, and the outputs are the numbers of cells of bacteria.



5-22. Solve each system of equations below.

a.
$$y = 3x + 1$$

 $x + 2y = -5$

b.
$$2x + 3y = 9$$
$$x - 2y = 1$$

5-23. Solve each equation for the indicated variable.

a.
$$t = an + b$$
 (for b)

b.
$$\frac{y}{3} - a = b$$
 (for y)

5-25. Determine the domain and range of each of the following graphs.

