Practice 1.10: Function Notation and Evaluating Functions A
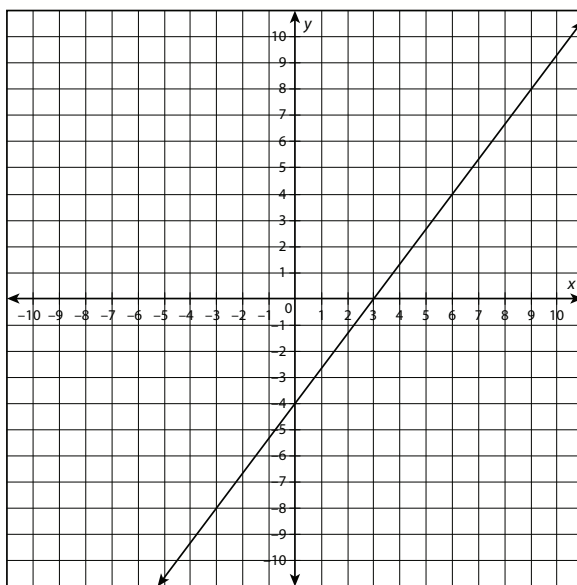
For problems 1–4, evaluate the given functions and determine the range of each.

1. Evaluate $f(x) = 2x - 8$ over the domain {0, 1, 3, 8}. What is the range of $f(x)$?

2. Evaluate $g(x) = x - 13$ over the domain {2, 4, 6, 8}. What is the range of $g(x)$?

3. Evaluate $f(x) = 3x + 1$ over the domain {1, 2, 3, 4}. What is the range of $f(x)$?

4. Evaluate $r(x) = 2x - 1$ over the domain {0, 1, 2, 3}. What is the range of $r(x)$?

Use what you know about function notation and graphing functions to complete problems 5–10.

5. Given the graph of $f(x)$, what is $f(-3)$?

6. Given the function $f(x) = -3x + 2$, what is $f(2)$?

7. A growing company has been hiring employees at a steady rate of 1 new hire per month. The company started with 2 employees. The growth of the company can be modeled by the function $g(x) = x + 2$, where x represents the number of months, and $g(x)$ represents the number of employees. Evaluate the function over the domain {3, 6, 18, 24}. Interpret the results and use a graph to explain your answer.

8. A population of insects doubles every 3 days. The population started with 8 insects. The function that models this growth is $f(x) = 8(2)^{\frac{x}{3}}$. Evaluate the function over the domain {0, 3, 6, 12}.

    Interpret the results and use a graph to explain your answer.

9. A postal delivery service charges $3.40 per package and an additional $0.50 for each ounce the package weighs. The function can be modeled by $f(x) = 0.5x + 3.4$, where x represents the number of ounces and $f(x)$ represents the total delivery charge. Tom ships four packages with the following weights: 2 ounces, 3.5 ounces, 15 ounces, and 21.3 ounces. Write four statements using function notation that you can use to evaluate the function given each of these weights. Interpret the results in terms of the context of the function.

10. The function $c(x) = 50x$ represents the number of words $c(x)$ you can type in x minutes. How many words can you type in 6.5 minutes?