4-6 **Practice**

Form K

Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.
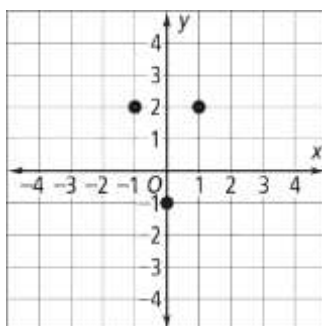
1. {(2, 4), (8, 11), (9, 1), (4, 2)}

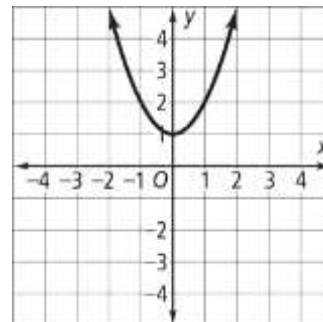**2.** {(0, 1.2), (3, 1.6), (1, 0.6), (0, 2.5)}

3. {(−4, −6), (1, −2), (−4, 4), (−1, 2)}

4. {(6, 5), (5, 6), (2, 2), (2, 6)}

Use the vertical line test to determine whether the relation is a function.

5.

6.

4-6 **Practice** (continued)   *Form K*

Find the range of each function for the given domain.

7. $f(x) = -4x + 5$; $\{-1, 0, 1, 2, 3\}$

8. $f(x) = x^3 + 2$; $\{-2, -1, 0, 1, 2\}$

9. $f(x) = x - 7$; $\{-5, -3, -1, 1, 3\}$

10. $f(x) = x^2 - 3$; $\{-4, -2, 0, 1, 3\}$

11. A tenth grade class is selling granola bars for a fundraiser. They earn $0.75 for every granola bar that they sell. They have ordered 300 granola bars for the sale. The function $P(b) = 0.75b$ represents the profit P the class earns for each bar b they sell. Find a reasonable domain and range for the function.

12. The function $t(x) = 150x$ represents the number of words $t(x)$ you can speak in x minutes. How many words can you speak in 20 minutes?

13. Reasoning If $f(x) = x^2 - 12$ and $f(a) = 52$, what is the value of a? Explain.

14. Open-Ended What is a value of b that makes the relation $\{(3, 5), (2, 5), (9, b)\}$ a function?