

# 4-6 Practice

Form K

## Formalizing Relations and Functions

Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.

1.  $\{(2, 4), (8, 11), (9, 1), (4, 2)\}$

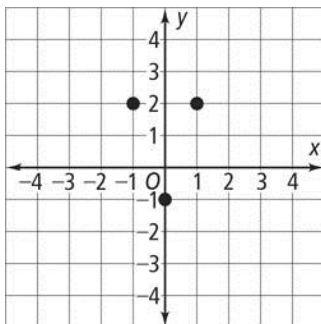
2.  $\{(5, 2.2), (3, 2.6), (1, 2.6), (0, 2.5)\}$

3.  $\{(-4, -6), (1, -2), (-4, 4), (-1, 2)\}$

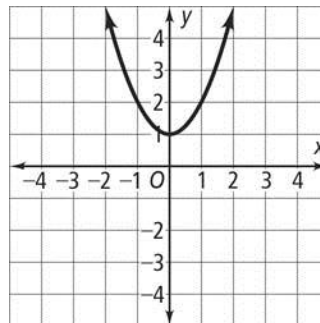
4.  $\{(6, 5), (5, 6), (2, 2), (2, 6)\}$

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

5.



6.



[Type text]

**Find the range of each function for the given domain.**

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

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

9.  $f(x) = x - 6$ ;  $\{-5, -3, -1, 1, 3\}$

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

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  $f(x) = x^2 - 15$  and  $f(a) = 49$ , what is the value of  $a$ ? Explain.

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