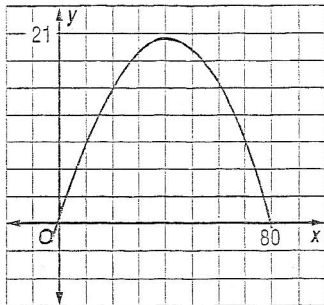


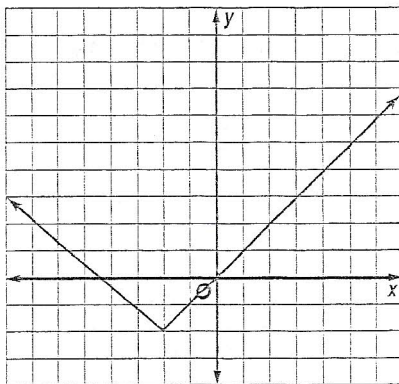
1. **STAIRS** What type of a function has a graph that could be used to model a staircase?

2. **GOLF BALLS** The trajectory of a golf ball hit by an astronaut on the moon is described by the function  $f(x) = -0.0125(x - 40)^2 + 20$ .



Describe the shape of this trajectory.

3. **RAVINE** The graph shows the cross-section of a ravine.



What kind of function is represented by the graph? Write the function.

4. **LEAKY FAUCETS** A leaky faucet leaks 1 milliliter of water every second. Write a function that gives the number of milliliters leaked in  $t$  seconds as a function of  $t$ . What type of function is it?

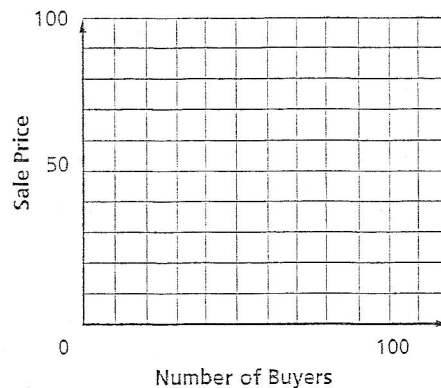
**PUBLISHING** For Exercises 5-8, use the following information.

Kate has just finished writing a book that explains how to sew your own stuffed animals. She hopes to make \$1000 from sales of the book because that is how much it would cost her to go to the European Sewing Convention. Each book costs \$2 to print and assemble. Let  $P$  be the selling price of the book. Let  $N$  be the number of people who will buy the book.

5. Write an equation that relates  $P$  and  $N$  if she earns exactly \$1,000 from sales of the book.

6. Solve the equation you wrote for Exercise 5 for  $P$  in terms of  $N$ .

7. What kind of function is  $P$  in terms of  $N$ ? Sketch a graph of  $P$  as a function of  $N$ .



8. If Kate thinks that 125 people will buy her book, how much should she charge for the book?