# Lesson 11 Practice Problems

1. A child tosses a baseball up into the air. On its way down, it gets caught in a tree for several seconds before falling back down to the ground.
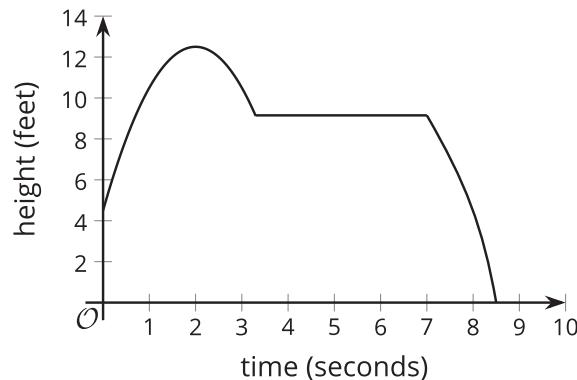
   Select the best description of the range of this function.

   A. The range includes all numbers from 5 to 12.5.

   B. The range includes all integers between 0 and 12.5.

   C. The range includes all numbers from 0 to 8.5.

   D. The range includes all numbers from 0 to 12.5.

2. To raise funds for a trip, members of a high school math club are holding a game night in the gym. They sell tickets at $5 per person. The gym holds a maximum of 250 people. The amount of money raised is a function of the number of tickets sold.

   Which statement accurately describes the domain of the function?

   A. all numbers less than 250

   B. all integers

   C. all positive integers

   D. all positive integers less than or equal to 250

3. C gives the cost, in dollars, of a cafeteria meal plan as a function of the number of meals purchased, n. The function is represented by the equation $C(n) = 4 + 3n$.

   a. Find a value of n such that $C(n) = 31$ is true.

b. What does that value of n tell you about the cafeteria meal plan?

(From Unit 4, Lesson 5.)

4. Lin completes a 5K using a combination of walking and running. Here are four graphs that represent four possible situations. Each graph shows the distance, in meters, as a function of time, in minutes.
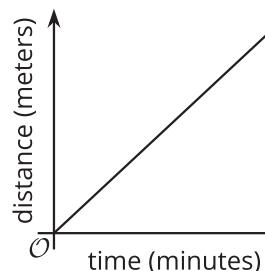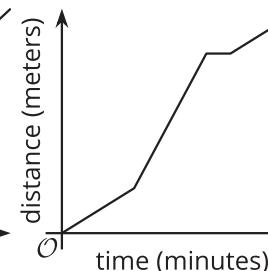
Graph 1 **Graph 2** **Graph 3** **Graph 4**
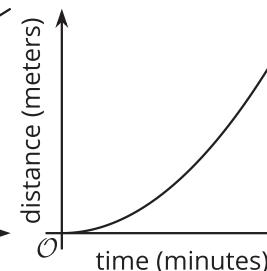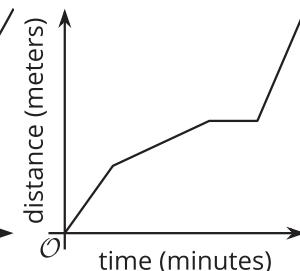
Match each description with a graph that could represent it.

A. Lin starts out running, but then slows down to a jog. After 10 minutes, she stops for a water break. She then runs the rest of the way.

B. Lin starts the race walking, gradually getting faster and faster.

C. Lin jogs at a steady pace for the entire race.

D. Lin starts out walking, then moves to a steady run. After 15 minutes, she stops to stretch a cramped leg. Then, she walks the rest of the way.

1. Graph 1

2. Graph 2

3. Graph 3

4. Graph 4

5. The graph of H shows the height, in meters, of a rocket t seconds after it was launched.

a. Find $H(0)$. What does this value represent?
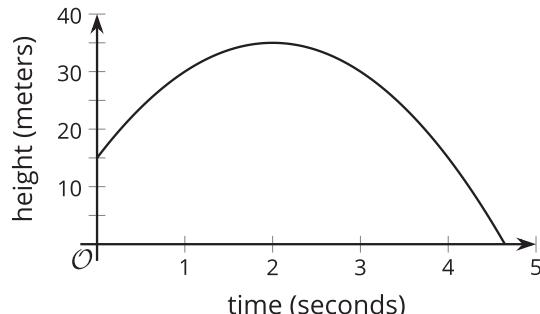
b. Describe the domain of this function.

c. Describe the range of this function.

d. Solve $H(x) = 0$. What does this value represent?

6. Mai has to decide between two cafeteria meal plans. Under plan A, each meal costs $2.50. Under plan B, one month of meals costs $30.

a. Write an equation for function A, which gives the cost, in dollars, of buying n meals under plan A.

b. Write an equation for function B, which gives the cost, in dollars, of buying n meals under plan B.

c. Mai estimates that she'll buy 15 meals per month. Which meal plan should she choose? Explain your reasoning.

(From Unit 4, Lesson 5.)

7. Kiran is playing a video game. He earns 3 stars for each easy level he completes and 5 stars for each difficult level he completes. He completes more than 20 levels total and earns 80 or more stars.

  a. Create a system of inequalities that describes the constraints in this situation. Be sure to specify what each variable represents.

  b. Graph the inequalities and show the solution region.

number of difficult levels (y-axis), number of easy levels (x-axis)
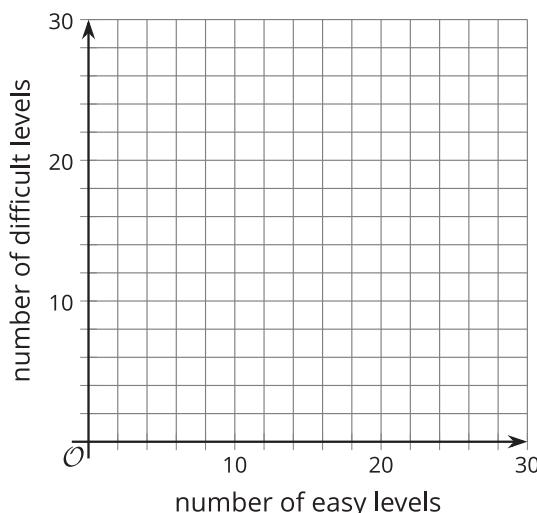
  c. Then, identify a point that represents a combination of stars and levels that is a solution to the system.

  d. Interpret the point $(5, 6)$ in the context of this situation and determine how many stars Kiran earns based on this point.

(From Unit 2, Lesson 25.)