

## 30

## Analyze Functions

SOL 7.17.f 7.19

## Example

A pilot kept a record of the time and distance of her flight.

time elapsed (hr)	distance remaining (mi)
0	780
1	590
2	400
3	210

What is the relationship between time elapsed and distance remaining?

- A As time elapsed increases, distance remaining also increases.
- B As time elapsed increases, distance remaining stays the same.
- C** As time elapsed increases, distance remaining decreases.
- D There is no relationship.

## Thinking It Through

**Skim** Look at the second column, *distance remaining*, to identify the change from one row to the next. Notice the common difference between successive values:

$$590 - 780 = -190$$

$$400 - 590 = -190$$

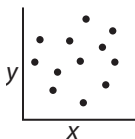
$$210 - 400 = -190$$

Since the time elapsed is recorded in increments of 1 hour, you can describe the change in the following way:

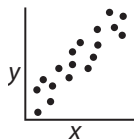
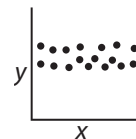
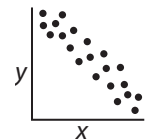
For each hour of flight, the distance remaining *decreases* 190 miles, *choice C*.

## Review

- When viewing tables, look for a relationship that might exist among the data displayed. Is there a pattern in each column of numbers? Do the numbers in each column increase, decrease, or stay the same?
- You can use subtraction and division to help identify patterns. Try subtracting one number in a column from the number before or after it, to identify if there is a consistent difference as in the example above.
- Or try dividing the number in one column by the matching number in the other to see if there is a consistent quotient.
- A **scattergram** is a way of visually showing a relationship between sets of data using points.



No correlation

Positive correlation  
(As  $x$  increases,  $y$  increases)Constant correlation  
(As  $x$  increases,  $y$  stays the same)Negative correlation  
(As  $x$  increases,  $y$  decreases)

# Analyze Functions

# 30

**DIRECTIONS** Read and solve each question. Then circle the letter of the best answer.

- 1 Consider the table of values below.

$x$	$y$
1	3.5
2	7
3	10.5
4	14

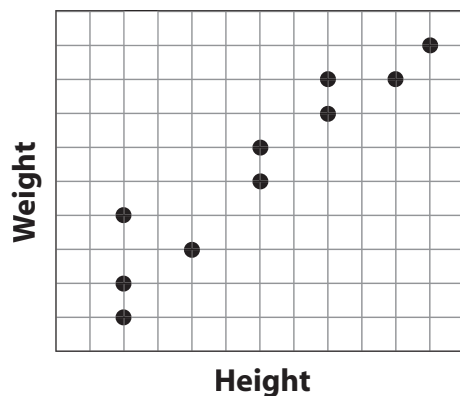
Which statement *best* describes the changes in the  $x$  and  $y$  values?

- A As  $x$  increases,  $y$  stays the same.
- B As  $x$  increases by 1,  $y$  always doubles.
- C As  $x$  increases,  $y$  increases.
- D As  $x$  increases by 1,  $y$  increases by 3.5.



Make sure you are looking for the best answer—the statement that most thoroughly describes the changes in  $x$  and  $y$ .

- 2 Which *best* describes the correlation between height and weight?



- F No correlation
- G Positive
- H Constant
- J Negative

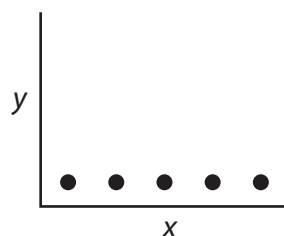
- 3 Jared recorded data in his science journal, as shown in the table below.

time	number of bacteria
12:00	16
12:15	24
12:30	36
12:45	54
1:00	81

Which statement is *true* about the number of bacteria?

- A It increases by 1.5 each minute.
- B It increases 150% every minute.
- C It increases 50% every 15 minutes.
- D It doubles every 15 minutes.

- 4 As  $x$  increases, what happens to  $y$ ?



- F Stays the same
- G Increases
- H Decreases
- J No correlation