

LESSON

Practice B

4-3 Writing Functions

Determine a relationship between the x - and y -values. Write an equation.

1.

x	-4	-3	-2	-1
y	-1	0	1	2

2. $\{(2, 3), (3, 5), (4, 7), (5, 9)\}$

Identify the independent and dependent variables in each situation.

3. Ice cream sales increase when the temperature rises.

4. Food for the catered party costs \$12.75 per person.

I: _____

I: _____

D: _____

D: _____

Identify the independent and dependent variables. Write a rule in function notation for each situation.

5. Carson charges \$7 per hour for yard work.

6. Kay donates twice what Ed donates.

Evaluate each function for the given input values.

7. For $f(x) = 5x + 1$, find $f(x)$ when $x = 2$ and when $x = 3$. _____

8. For $g(x) = -4x$, find $g(x)$ when $x = -6$ and when $x = 2$. _____

9. For $h(x) = x - 3$, find $h(x)$ when $x = 3$ and when $x = 1$. _____

Complete the following.

10. An aerobics class is being offered once a week for 6 weeks. The registration fee is \$15 and the cost for each class attended is \$10. Write a function rule to describe the total cost of the class. Find a reasonable domain and range for the function.

LESSON 4-3 Practice A Writing Functions

Choose the equation from the box that describes each relationship.

1.

x	-3	-2	-1	0
y	-9	-6	-3	0

 $y = 3x$

y	-3x
y	3x
y	x - 3

2. $\{(3, 0), (2, -1), (1, -2), (0, -3)\}$ $y = x - 3$

3. $\{(0, 0), (1, -3), (2, -6), (3, -9)\}$ $y = -3x$

For each, write whether the given variable is *independent* or *dependent*.

4. Auto insurance costs increase with each accident and traffic violation.

- number of accidents/violations: independent
- cost of auto insurance: dependent

5. Christian is buying several DVDs that cost \$12 each.

- total cost of the DVDs: dependent
- number of DVDs purchased: independent

Evaluate each function for the given input values.

6. For $f(x) = x + 7$, find $f(x)$ when $x = 3$ and when $x = -5$. 10 2

7. For $g(x) = -2x$, find $g(x)$ when $x = 4$ and when $x = -1$. -8 2

8. For $h(x) = 3x - 1$, find $h(x)$ when $x = -2$ and when $x = 7$. -7 20

Complete the following.

9. Marlena is making her own beaded bracelets. Each bracelet will have 10 beads. Write a function rule to describe the number of beads she will use. Find a reasonable domain and range for the function if Marlena makes up to 7 bracelets.

rule: $f(b) = 10b$
 domain: D: {0, 1, 2, 3, 4, 5, 6, 7}
 range: R: {0, 10, 20, 30, 40, 50, 60, 70}

10. Giselle is going to rent a scooter for at least one hour. The fee is \$45 plus \$5 for each hour it is rented. Write a function rule to describe the total cost of renting a scooter. Find a reasonable domain and range for the function if Giselle has \$65.

rule: $f(h) = 45 + 5h$
 domain: D: {1, 2, 3, 4}
 range: R: {50, 55, 60, 65}

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LESSON 4-3 Practice B Writing Functions

Determine a relationship between the x - and y -values. Write an equation.

1.

x	-4	-3	-2	-1
y	-1	0	1	2

 $y = x + 3$

2. $\{(2, 3), (3, 5), (4, 7), (5, 9)\}$ $y = 2x - 1$

Identify the independent and dependent variables in each situation.

3. Ice cream sales increase when the temperature rises.
 I: temperature
 D: ice cream sales

4. Food for the catered party costs \$12.75 per person.
 I: number of people
 D: cost of food

Identify the independent and dependent variables. Write a rule in function notation for each situation.

5. Carson charges \$7 per hour for yard work.
 I: number of hours
 D: total charge
 $f(h) = 7h$

6. Kay donates twice what Ed donates.
 I: Ed's donation
 D: Kay's donation
 $f(d) = 2d$

Evaluate each function for the given input values.

7. For $f(x) = 5x + 1$, find $f(x)$ when $x = 2$ and when $x = 3$. 11 16

8. For $g(x) = -4x$, find $g(x)$ when $x = -6$ and when $x = 2$. 24 -8

9. For $h(x) = x - 3$, find $h(x)$ when $x = 3$ and when $x = 1$. 0 -2

Complete the following.

10. An aerobics class is being offered once a week for 6 weeks. The registration fee is \$15 and the cost for each class attended is \$10. Write a function rule to describe the total cost of the class. Find a reasonable domain and range for the function.

$f(x) = 15 + 10x$
 D: {0, 1, 2, 3, 4, 5, 6}
 R: {15, 25, 35, 45, 55, 65, 75}

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LESSON 4-3 Practice C Writing Functions

Determine a relationship between the x - and y -values. Write an equation.

1.

x	-2	-1	0	1
y	4	1	0	1

 $y = x^2$

2. $\{(-1, -4), (0, -2), (2, 2), (5, 8)\}$ $y = 2x - 2$

Identify the independent and dependent variables in each situation.

3. More program money is given out to cities with a larger population.
 I: population
 D: amount of money

4. Sales tax in the state of Maryland is 5% of the purchase price.
 I: purchase price
 D: amount of sales tax

Identify the independent and dependent variables. Write a rule in function notation for each situation.

5. Meg earns a \$5 flat fee plus \$4.50 per student for a tutoring session.
 I: number of students
 D: money earned
 $f(s) = 5 + 4.5s$

6. Jeb is allowed 2 hours less television time per week than his older brother.
 I: Jeb's brother's TV time
 D: Jeb's TV time
 $f(b) = b - 2$

Evaluate each function for the given input values.

7. For $f(x) = 3x + 2$, find $f(x)$ when $x = 4$ and when $x = -1$. 14 -1

8. For $g(x) = -6x$, find $g(x)$ when $x = -5$ and when $x = 3$. 30 -18

9. For $h(x) = x^2 - 4$, find $h(x)$ when $x = 2$ and when $x = -7$. 0 45

Complete the following.

10. A fitness class is being offered twice a week for four weeks. The registration fee is \$8.50 and the cost for each class attended is \$4.75. Write a function rule to describe the total cost of the class. Find a reasonable domain and range for the function.

$f(x) = 8.50 + 4.75x$
 D: {0, 1, 2, 3, 4, 5, 6, 7, 8}
 R: {8.50, 13.25, 18.00, 22.75, 27.50, 32.25, 37.00, 41.75, 46.50}

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LESSON 4-3 Reteach Writing Functions

Functions have dependent and independent variables. The dependent variable will always depend on the independent variable.

Rewrite each situation using the word *depends*. Then identify the dependent and the independent variables.

An employee who works longer hours will receive a larger amount on her paycheck.
 Rewrite sentence:
 The amount of a paycheck *depends* on the number of hours worked.
 Dependent: amount of paycheck Independent: number of hours worked

A box with several books weighs more than a box with just a few books.
 Rewrite sentence:
 The weight of a box *depends* on the number of books in the box.
 Dependent: weight of box Independent: number of books in box

Rewrite each sentence using the word *depends*. Then identify the dependent and the independent variables.

1. A very large animal will eat many pounds of food.
 The amount of food eaten *depends* on the size of the animal.
 Dependent: pounds of food
 Independent: size of animal

2. The fire was very large, so many firefighters were there.
 The number of firefighters *depends* on the size of the fire.
 Dependent: number of firefighters
 Independent: size of the fire

3. The temperature of the water on the heated stove rose each minute.
 The temperature of the water *depends* on the time it has been on the stove.
 Dependent: temperature of the water
 Independent: time on the stove

4. The restaurant bill was low because only a few meals were ordered.
 The amount of the restaurant bill *depends* on the number of meals ordered.
 Dependent: amount of the restaurant bill
 Independent: number of meals ordered

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