

LESSON 1.3 Skills Practice

1

Name _____ Date _____

**Are All Functions Created Equal?
Comparing Multiple Representations of Functions**

Vocabulary

Write a definition for each term in your own words.

1. relation

2. function

3. function notation

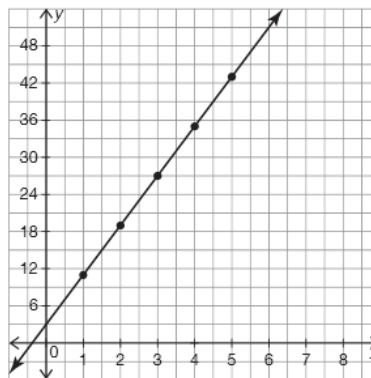
Problem Set

Determine whether the functions are equivalent.

1.

Input	Output
1	11
2	19
3	27
4	35
5	43

The functions are equivalent because the same outputs are matched to each input.



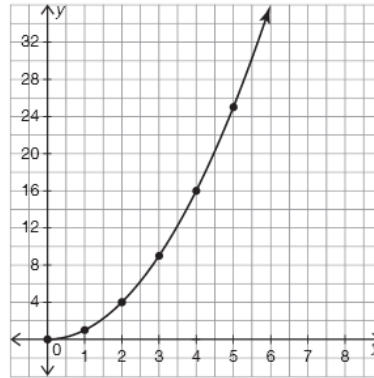
1

LESSON 1.3 Skills Practice

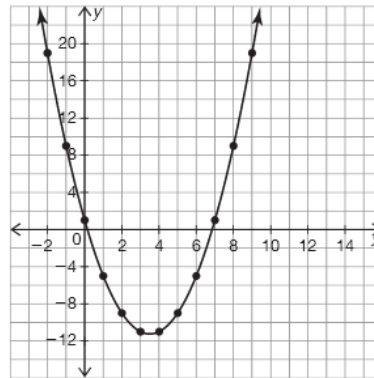
page 2

2.

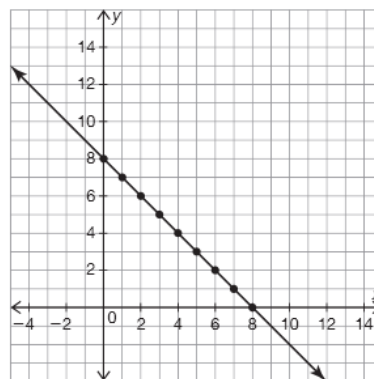
Input	Output
1	1
2	4
3	9
4	16
5	25



3. $y = x^2 - 7x + 1$



4. $y = 5(x - 1) + 4$



© Carnegie Learning

LESSON 1.3 Skills Practice

page 3

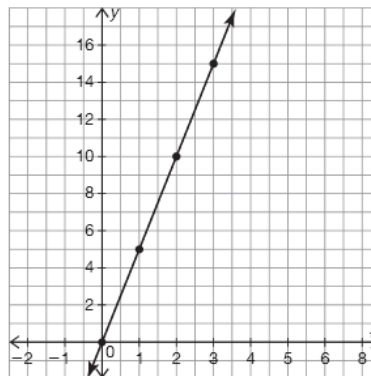
1

Name _____ Date _____

5. $f(x) = 3(x + 1)$

Input	Output
1	3
2	6
3	9
4	12
5	15

6. Alton is selling a few handmade toys at a community sale. After the first hour, Alton has earned \$5. After the second hour, he has earned \$10 and after the third hour, he has earned \$15.



1

LESSON 1.3 Skills Practice

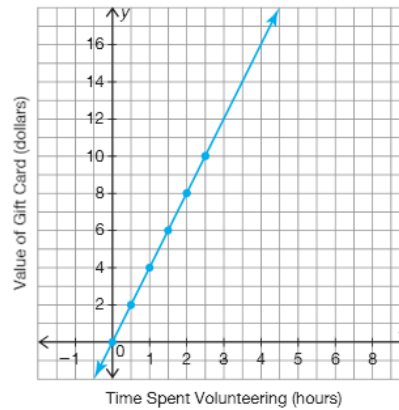
page 4

Model each scenario using a table, a graph, and a function.

- A local arts festival has 150 vendors and 75 volunteers. Each volunteer receives a T-shirt and earns \$2 for each hour spent volunteering towards a gift card for the festival. Model the value of a gift card that a volunteer can earn.

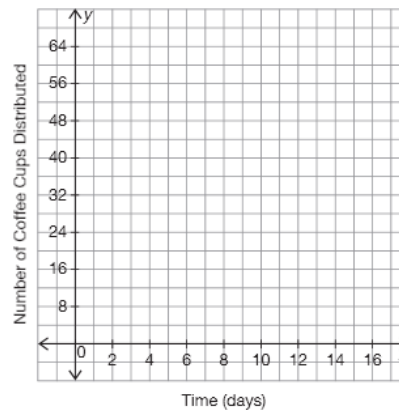
The function $f(x) = 2x$ represents the amount that a volunteer can earn.

Time Spent Volunteering (hours)	Value of Gift Card (dollars)
1	2
2	4
3	6
4	8
5	10



- A public broadcasting station distributes 16 coffee cups each day of their fundraising drive to individuals who donate at least \$75. During the fundraising drive, 12 people decline the coffee cup. Model the number of coffee cups that are distributed.

Time (days)	Number of Coffee Cups Distributed



© Carnegie Learning

LESSON 1.3 Skills Practice

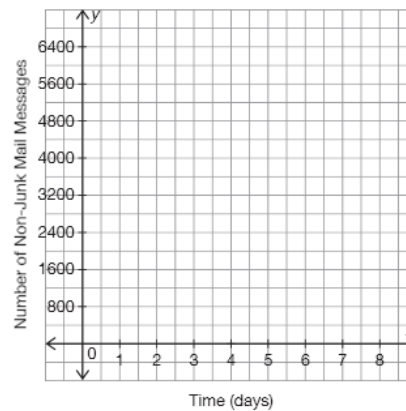
page 5

1

Name _____ Date _____

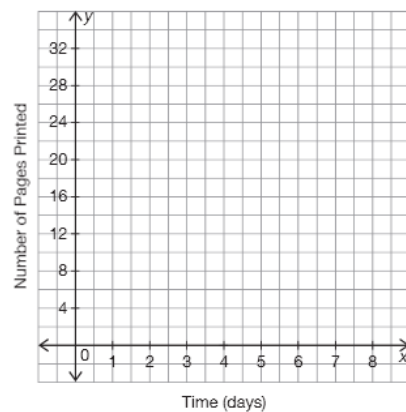
9. The school receives 2000 e-mail messages each day. Of those messages, 1250 are junk mail messages. Model the number of e-mail messages received by the school that are not junk mail.

Time (days)	Number of Non-Junk Mail Messages Received



10. In order to cover the cost of paper, the computer lab institutes a new policy stating that students are only permitted to print 100 sheets of paper before incurring a cost. The policy is retroactive to the start of the current school year. After they have printed 100 sheets of paper, they must pay \$0.50 per sheet of paper. Before the policy was created, one student had already printed a 5-page paper. He continues to print 4 pages per day. Model the number of pages this student prints.

Time (days)	Number of Pages Printed



© Carnegie Learning

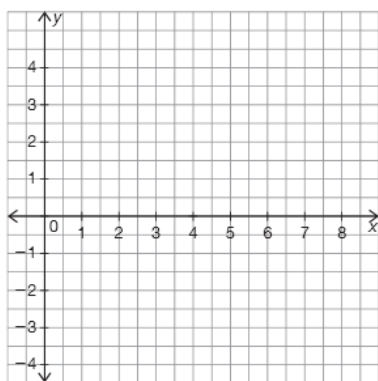
1

LESSON 1.3 Skills Practice

page 6

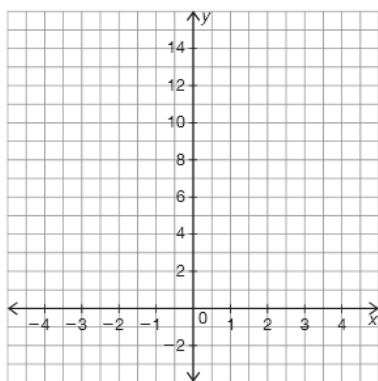
11. The opposite of x squared plus 5

x	$f(x)$



12. The cube of x plus 5

x	$f(x)$



© Carnegie Learning

LESSON 1.3 Skills Practice

page 7

1

Name _____ Date _____

Write an expression that represents each scenario. Then answer the question.

13. Tommy is purchasing items from an online store. The store charges \$6 shipping and handling for each package. Write an expression to represent the total shipping costs. How much will Tommy pay in shipping and handling for 2 packages?

An expression to represent the total shipping costs is $6x$.

$$6x = 6(2)$$

$$= 12$$

The cost for 2 packages is \$12.

14. A library has 45 books in their young adult science fiction collection. During a collection drive, the library collects 9 new young adult science fiction books per day. How many total young adult science fiction books will the library have after 1 week?

15. A group of friends is planning a trip to the movie theater. The cost of one ticket for a movie is \$8.50. The cost for each person to purchase snacks at the theater is \$5. How much will a group of 8 friends pay to purchase movie tickets and snacks at the theater?

Number of Friends	Total Cost of Ticket and Snacks (dollars)
2	27
3	40.5
4	54
5	67.5
6	81

1

LESSON 1.3 Skills Practice

page 8

16. A bookstore advertises a book signing by calling each of the 12 members of their book club. Each member of the book club calls two additional people. The table lists the number of people who receive a call. How many people will receive a call in the 4th round of calls?

Round of Calls	Number of People Who Receive a Call
1	12
2	24
3	48

17. A photographer takes 46 photos per hour during a soccer game. How many photos does the photographer take if the game lasts 3.5 hours?

18. The high school choir hosts a concert for the community. The members of the choir sell tickets for the concert. Each member of the choir sells 3 tickets. Tickets are also sold at the door before the concert. A total of 125 tickets are sold at the door. How many total tickets are sold if there are 18 members of the choir?

LESSON 1.3 Skills Practice

page 9

1

Name _____ Date _____

Determine whether the expressions are equivalent.

19. $(5x + 3) + 3x^2 - 2$ and $(5x + 1) + 3x^2$

$(5x + 3) + 3x^2 - 2$

$3x^2 + 5x + 1$

The expressions are equivalent.

$(5x + 1) + 3x^2$

$3x^2 + 5x + 1$

20. $3x^2 + (x - 2)(x + 1)$ and $(2x - 2)(2x + 1)$

21. $(2x + 1)^2 - 2x(x - 3)$ and $6x^2 + 6x + 2 - (2x - 1)^2$

22. $(7x^2 + 1) - (3x - 1)(x + 4)$ and $2x(x - 3) + 2x^2 - 5x + 5$

1**LESSON 1.3 Skills Practice***page 10*

23. $6x(x + 1)$ and $6x^2 + 6$

24. $8x(2x + 1) + 8x^2$ and $8x(3x + 1)$