

# 8 - Exercises - Chapter 4

Name Answer key Hour     

## Lesson 4.1 Practice

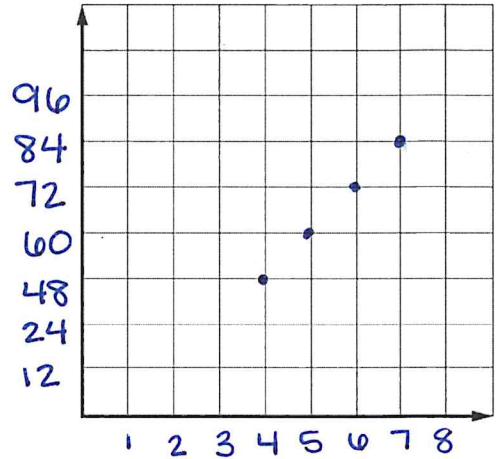
## Representing Relationships

1. A car dealer sells 12 cars per week.  
 a. Write an equation to find the number of new cars,  $c$ , sold in any number of weeks,  $w$ .

$$C = 12w$$

- b. Make a table to find the number of new cars sold in 4, 5, 6, or 7 weeks. Then graph the ordered pairs.

Weeks, $w$	Cars, $c$
4	48
5	60
6	72
7	84

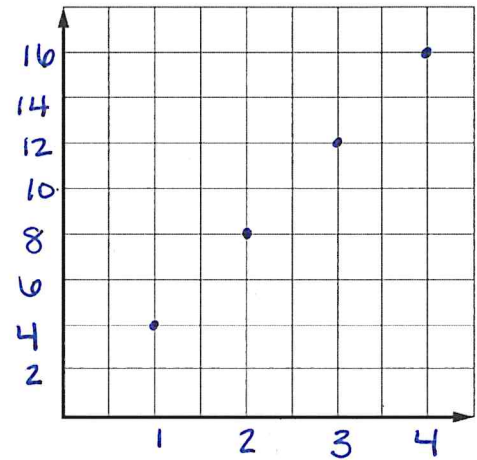


2. An author writes four pages per day.  
 a. Write an equation to find the number of pages,  $p$ , written in any number of days,  $d$ .

$$p = 4d$$

- b. Make a table to find the number of new cars sold in 1, 2, 3, or 4 days. Then graph the ordered pairs.

Days, $d$	Pages, $p$
1	4
2	8
3	12
4	16



## Lesson 4.2 Practice

## Relations

Name the ordered pair for each point.

3. A

$$(-2, 2)$$

4. B

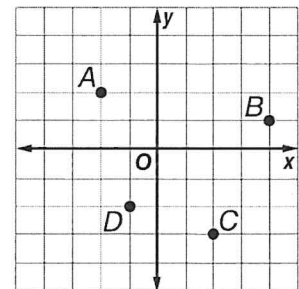
$$(4, 1)$$

5. C

$$(2, -3)$$

6. D

$$(-1, -2)$$



# 8 - Exercises - Chapter 4

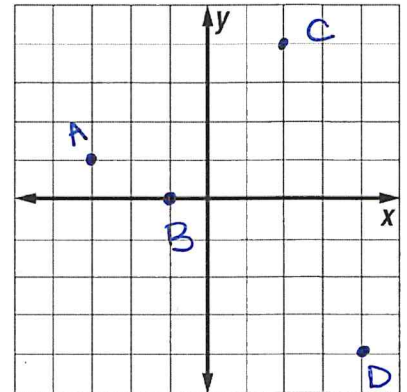
Express each relation as a table and a graph. Then state the domain and range.

7.  $\{(-3, 1), (2, 4), (-1, 0), (4, -4)\}$

Domain:  
 $\{-3, -1, 2, 4\}$

Range:  
 $\{-4, 0, 1, 4\}$

	x	y
A	-3	1
B	-1	0
C	2	4
D	4	-4

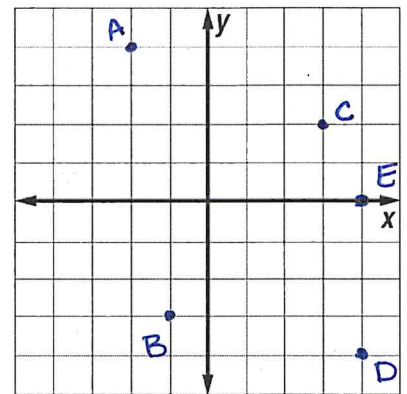


8.  $\{(3, 2), (-2, 4), (4, -4), (4, 0), (-1, -3)\}$

Domain:  
 $\{-2, -1, 3, 4\}$

Range:  
 $\{-4, -3, 0, 2, 4\}$

	x	y
A	-2	4
B	-1	-3
C	3	2
D	4	-4
E	4	0



## Lesson 4.3 Practice

Find each function value

9.  $f(1)$  if  $f(x) = x + 3$

$f(1) = 4$

12.  $f(9)$  if  $f(x) = -3x + 10$

$f(9) = -17$

10.  $f(6)$  if  $f(x) = 2x$

$f(6) = 12$

13.  $f(-2)$  if  $f(x) = 4x - 1$

$f(-2) = -9$

11.  $f(4)$  if  $f(x) = 5x - 4$

$f(4) = 16$

14.  $f(-5)$  if  $f(x) = -2x + 8$

$f(-5) = 18$

## Functions

# 8 – Exercises – Chapter 4

Make a function table for each function. Then state the domain and range of the function.

15.  $f(x) = x - 10$

$x$	$x - 10$	$f(x)$
-2	-2 - 10	-12
-1	-1 - 10	-11
0	0 - 10	-10
1	1 - 10	-9
2	2 - 10	-8

Domain:

$$\{-2, -1, 0, 1, 2\}$$

Range:

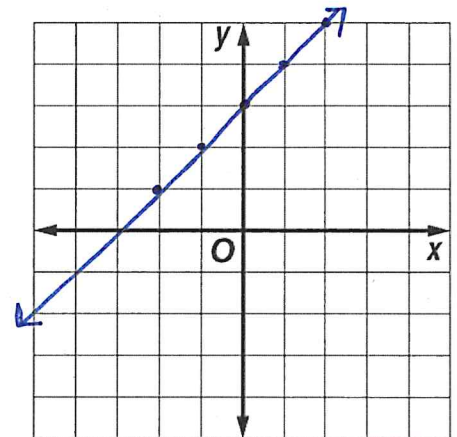
$$\{-12, -11, -10, -9, -8\}$$

## Lesson 4.4 Practice

Complete the function table. Then graph the function.

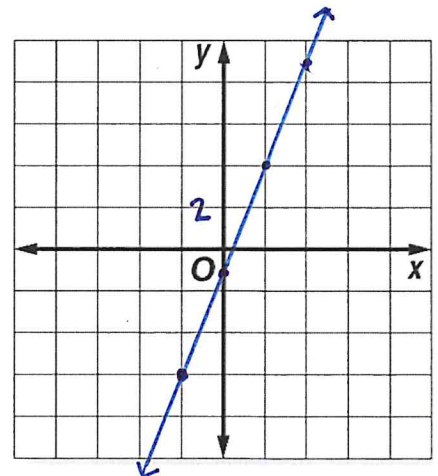
17.  $y = x + 3$

$x$	$x + 3$	$y$	$(x, y)$
-2	-2 + 3	1	(-2, 1)
-1	-1 + 3	2	(-1, 2)
0	0 + 3	3	(0, 3)
1	1 + 3	4	(1, 4)
2	2 + 3	5	(2, 5)



18.  $y = 5x - 1$

$x$	$5x - 1$	$y$	$(x, y)$
-2	5(-2) - 1	-11	(-2, -11)
-1	5(-1) - 1	-6	(-1, -6)
0	5(0) - 1	-1	(0, -1)
1	5(1) - 1	4	(1, 4)
2	5(2) - 1	9	(2, 9)



16.  $f(x) = 3x - 2$

$x$	$3x - 2$	$f(x)$
-2	3(-2) - 2	-8
-1	3(-1) - 2	-5
0	3(0) - 2	-2
1	3(1) - 2	1
2	3(2) - 2	4

Domain:

$$\{-2, -1, 0, 1, 2\}$$

Range:

$$\{-8, -5, -2, 1, 4\}$$

## Linear Function



# 8 – Exercises – Chapter 4

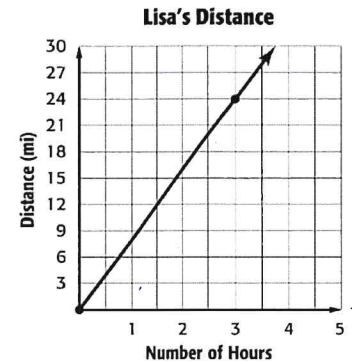
## Lesson 4.5 Practice

19. Melanie charges \$7.50 an hour to babysit. That table shows how much Luisa charges for babysitting. Compare the functions by comparing their rates of change.

Number of Hours	Cost of Babysitting (\$)
1	8
2	16
3	24

Luisa charges \$8 an hour. She charges \$0.50 more than Melanie.

20. Tom and Lisa each spent an afternoon biking on neighborhood trails. The distance,  $y$ , Tom traveled can be represented by the function  $y = 11x$ . The graph shows Lisa's distance. Compare their rate of change.



Lisa traveled 8 miles in an hour. Tom travels further than Lisa by 3 miles per hour.

## Lesson 4.6 Practice

## Construct Functions

21. While hiking, Devon's altitude rose 10 feet for every 5 minutes. After an hour of hiking, his altitude was 295 feet. Assume the relationship is linear. Find and interpret the rate of change and initial value.

Rate of change: 2  
2 feet per minute.  
Devon's altitude rises 2 ft every minute

Initial value: 175  
Devon started at an altitude of 175 ft.

22. The table shows the total cost for a lawn mowing service to mow a lawn. Find and interpret the rate of change and the initial value.

Number of Hours	Cost (\$)
1	28
2	36
3	44

Rate of change:  
8  
The lawn mowing service charges \$8 per hour

Initial Value:  
20  
The lawn mowing service charges \$20 a lawn

# 8 – Exercises – Chapter 4

## Lesson 4.7 Practice

## Linear and Nonlinear Functions

Determine whether each table represents a *linear* or a *nonlinear* function. Explain.

23.

x	3	5	7	9
y	7	9	11	13

Linear, as x increases by 2, y increases by 2.

25.

x	3	6	9	12
y	2	3	4	5

Linear, as x increases by 3; y increases by 1

24.

x	1	5	9	13
y	0	6	8	9

Nonlinear, as x increases by 4, y does not change consistently.

26.

x	-2	-3	-4	-5
y	-1	-5	9	8

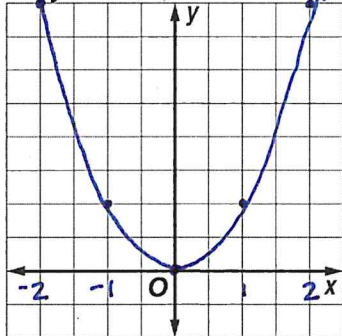
Nonlinear, as x decreases by 1; y does not change at a consistent rate

## Lesson 4.8 Practice

## Quadratic Functions

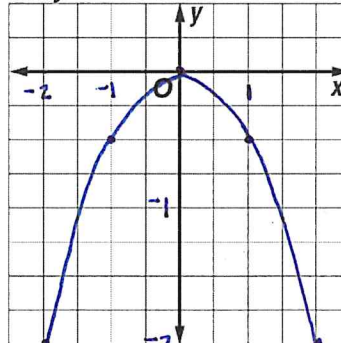
Make a function table using the values  $-2, -1, 0, 1,$  and  $2$ . Graph each function

27.  $y = 2x^2$



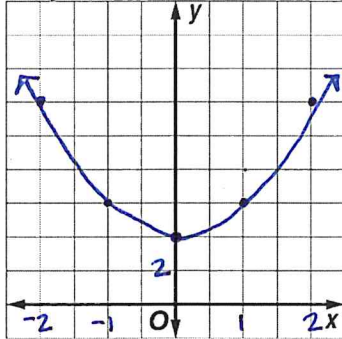
x	y
-2	8
-1	2
0	0
1	2
2	8

28.  $y = -0.5x^2$



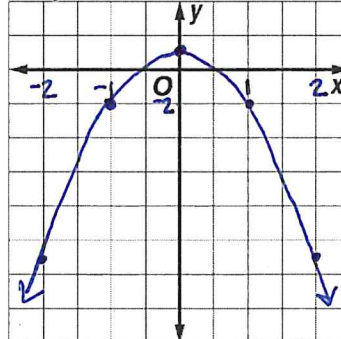
x	y
-2	-2
-1	-0.5
0	0
1	-0.5
2	-2

29.  $y = 2x^2 + 4$



x	y
-2	12
-1	6
0	4
1	6
2	12

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



x	y
-2	-11
-1	-2
0	1
1	-2
2	-11