LESSON 1-6

Practice B

Relations and Functions

Give the domain and range for each relation. Then determine whether each relation is a function.

1.	Average High Temperatures		
	Month	Temperature	
	Jun	82°	
	Jul	88°	
	Aug	93°	
	Sep	82°	



Use the vertical-line test to determine whether each relation is a function. If not, identify two points a vertical line would pass through.



Explain whether each relation is a function.

- 6. $\{(1, 1), (2, 2), (3, 3), (4, 4)\}$
- 7. from the model of car to the car's ID number
- 8. from the dates James took math tests to his test scores

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Reteach

1.	C·C		
2.	(3xy)(3xy)(3xy)(3xy)	')	
3.	$a \cdot a \cdot a(b-c)(b-c)$	c)	
4.	$\frac{1}{6}$	5.	1
6.	1 144	7.	_ <u>1</u> 64
8.	49	9.	<u>64</u> 27
10.	-1	11.	4 25
12.	-9	13.	25 <i>a</i> ²b ⁶
14.	$W^6 x^8$	15.	<i>y</i> ² <i>z</i> ⁵
16.	$\frac{2s^2}{t}$	17.	a ¹² b ⁶
18.	$\frac{-27y^8}{x^3}$		

Challenge

- 1. -125 and -125 2. -16 and 16
- Possible answer: -aⁿ is always negative;
 (-aⁿ) is negative if n is odd and positive if n is even.
- 4. True as written

5.
$$(-3)^2 + 81 - 3^4 - 3^2 = 0$$

- 6. $4x^2 + 36x^4y^4 (6(x^2y^2))^2 (2x)^2 = 0$
- 7. $-(12a)^3 + (2b)^2 + 1728a^3 2b^2 2b^2 = 0$
- 8. $(2g^2 + 2h^3 4)^0 + 24 = 25$
- 9. True as written
- 10. $(-12abc)^0 25d^2 + (34ab)^0 + (5d)^2 = 2$

Problem Solving

- 1. 101 million 2. 1998 to 1999
- 3. 1995 4. 1995
- 5. 1994, 1996 6. 36.4
- 7. B 8. H

Reading Strategies

- 1. g; 5 2. 6^8
- 3. $k^{u} \cdot k^{v} = k^{u+v}$; $2^{2} \cdot 2^{4} = 2^{6}$

- 4. $h^{-7}, \frac{1}{h^7}$ 5. xx^5
- 6. $-2p^{3}(3s^{3})$
- 7. $\frac{2a^5}{a^2}$ is not simplified because *a* is a like term; $2a^3$.
- 8. Use the Negative Exponent and Power of a Quotient Properties: $\left(\frac{x}{y}\right)^{-2} = \left(\frac{y}{x}\right)^{2} = \frac{y^{2}}{x^{2}}$.
 - Quotient Properties: $\left(\frac{-}{y}\right) = \left(\frac{-}{x}\right) = \frac{-}{x}$

LESSON 1-6

Practice A

- 1. *x* 2. *y*
- Domain: {Mon, Tue, Wed, Thu, Fri}; Range: {287, 395, 128, 326, 649}
- 4. Domain: {−2, −1, 0, 1}; Range: {1, −2}
- 5. This is a function.
- 6. This is not a function.
- 7. yes 8. yes
- 9. no

Practice B

- 1. Domain: {Jun, Jul, Aug, Sep}; Range: {82°, 88°, 93°}; this is a function.
- 2. Domain: {-4, -2, 0, 2, 4}; Range: {-3, -2, 4}; this is a function.



This is a function.

4. This is not a function; (1, 1) (1, -4)



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This is a function.

- 6. Yes, each value of *x* is associated with only 1 value of *y*.
- 7. No, each car model is manufactured as many individual cars.
- 8. Yes, there is only 1 score associated with each test date.

Practice C

1. Domain: {-2, 1, 3, 6}; Range: {-3, 4}



2. Domain: {0, 2, 3}; Range: {-2, -1, 1, 2}



3. Domain: {1, 2, 3, 4}; Range: {37, 38, 44, 59}



4. Domain: {-2, -1, 0, 1, 2}; Range: {-3, -2, -1, 0, 2, 3}



- 5. not a function; function
- 6. function; not a function
- 7. function; not a function
- 8. not a function; not a function
- 9. function; not a function
- 10. not a function; function

Reteach

- 1. 2002, 2003, 2004, 2005}; 28, 35, 42, 46}
- $2. \ -3, \ -2, \ -1, \ 0\}; \ -1, \ 0, \ 1, \ 2\}$
- 3. Function

 Not a function; possible answer: (1, 0), (1, −2)

Challenge

- 1. *V*, *W*, *X*, *Z*; *Y*: (3, 3) does not exist because 3 is not greater than 3.
- W, Z; V: 10 is a factor of 20, but 20 is not a factor of 10; X: 8 is a multiple of 4 but 4 is not a multiple of 8; Y: 3 > 2 but 2 is not greater than 3.
- 3. V, W, X, Y, Z 4. W, Z

Problem Solving

- 1. Yes; each calorie value has only one fat value.
- 2. Yes; each calorie value has only one carbohydrate value.
- 3. No; the carbohydrate value 12.2 has two calorie values, 102 and 83.
- 4. D 5. G
- 6. B 7. H

Reading Strategies

- 1. –2, 0, 1, 2; domain is the set of *x* values.
- 2. 4, 2, 0, –4, –6; range is the set of *y* values.
- 3. Not a function because the *x* value –2 is repeated
- 4. The relation is a function because no input values are repeated.

LESSON 1-7

Practice A

- 1. 3; 15; –6
- 2. 1; 0; 1



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