Name Key Class Date

4-5 Practice

Form G

Writing a Function Rule

Write a function rule that represents each sentence.

1. 5 less than one fourth of x is y.

2. 7 more than the quotient of a number n and 4 is 9.

3. P is 9 more than half of q.

4. 8 more than 5 times a number is -27.

5. 1.5 more than the quotient of a and 4 is b.

For Exercises 6–10, write a function rule that represents each situation.

6. The price p of an ice cream is \$3.95 plus \$0.85 for each topping t on the ice cream.

7. A babysitter's earnings e are a function of the number of hours n worked at a rate of \$7.25 per hour.

8. The price p of a club's membership is \$30 for an enrollment fee and \$12 per week w to be a member.

9. A plumber's fees f are \$75 for a house call and \$60 per hour h for each hour worked.

10. A hot dog d costs \$1 more than one-half the cost of a hamburger h.

11. José is 3 years younger than 3 times his brother's age. Write a rule that represents José's age j as a function of his brother's age b. How old is José if his brother is 5?

12. A taxicab charges \$4.25 for the first mile and \$1.50 for each additional mile. Write a rule for describing the total rate r as a function of the total miles m. What is the taxi rate for 12 miles?

4-5 Practice (continued) *Form G*

Writing a Function Rule

13. Write a function rule for the area of a rectangle whose length is 4 in. more than its width. What is the area of the rectangle when its width is 8 in.?

14. Write a function rule for the area of a rectangle with a length 3 ft more than two times its width. What is the area of the rectangle when its width is 4 ft?

15. Write a function rule for the area of a triangle with a base 2 m less than 4 times its height. What is the area of the triangle when its height is 8 m?

16. Reasoning Write a rule that is an example of a nonlinear function that fits the following description.

When b is 49, a is 7, and a is a function of b.

17. Open-Ended Describe a real-world situation that represents a nonlinear function.

18. Writing Explain whether or not the relationship between inches and feet represents a function.

19. Multiple Representations Use the table shown at the right.

a. Graph the ordered pairs on a coordinate plane.

b. Write an equation that can be used to find y for any x value.

c. Is the equation a function? Explain.

x	y
1	6
2	8
3	10
4	12

Key

Practice 4-5 Writing a Function Rule Assignment Form G

Problem #	Key Words	Symbol/Operation	Function Rule and Define your variable
1	less → of → is →	subtract (−) multiply (•) equal (=)	$\frac{1}{4}x - 5 = y$
2	more → quotient → of → is →	add (+) divide (÷) multiply (•) equal (=)	$7 + \frac{n}{4} = 9$
3	is → more → of →	equal (=) add (+) multiply (•)	$p = 9 + \frac{1}{2}q$
4	more → times → is →	add (+) multiply (•) equal (=)	$8 + 5x = -27$

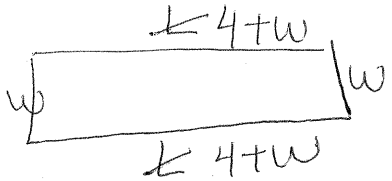
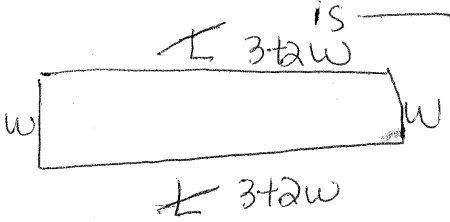
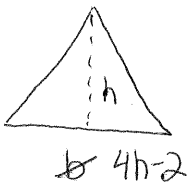
Practice 4-5 Writing a Function Rule Assignment Form G

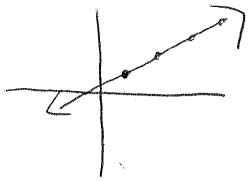
Problem #	Key Words	Symbol/Operation	Function Rule and Define your variable
5	more → add (+) quotient → divide ($\div$) is → equal (=)		$1.5 + \frac{q}{4} = b$
6	is → equal (=) plus → add (+) each → multiply ($\cdot$)		p = price t = topping $p = 3.95 + 0.85t$
7	of → multiply ($\cdot$) are → equal (=)		e = earnings n = hours $e = 7.25n$
8	is → equal (=) per week → multiply ($\cdot$)		p = price w = weeks $p = 30 + 12w$ $p = 12w + 30$

Practice 4-5 Writing a Function Rule Assignment Form G

Problem #	Key Words	Symbol/Operation	Function Rule and Define your variable
9	are → equal (=) each → multiply (•) ~~each~~		f = fees h = hours f = 75 + 60h f = 60h + 75
10	more → add (+) of → multiply (•)		d = hot dog hanburger = h d = 1 + $\frac{1}{2}$h d = $\frac{1}{2}$h + 1
11	is → equal (=) younger → subtract (−) times → multiply (•)		j = Jose age b = brothers age j = 3b − 3 Joses age if brother is 5 j = 3(5) − 3 j = 12 years old
12	additional → add (+) ~~total~~ each → multiply (•) rate means total cost		r = rate (total cost) m = miles r = 4.25 + 1.50m r = 1.50m + 4.25 for 12 miles: r = 1.50(12) + 4.25 r = $22.25

Practice 4-5 Writing a Function Rule Assignment Form G

Problem #	Key Words	Symbol/Operation	Function Rule and Define your variable
13	is → equal (=) more → plus (+) add 		L=length w=width $L = 4 + w$ $A = L \cdot w$ $A = (4+w)(w)$ when width is 8in $A = (4+8)(8)$ $96in^2$
14	more → add (+) times → multiply (·) is → equal (=) 		L=length w=width $L = 3 + 2w$ $A = L \cdot w$ $A = (3+2w)(w)$ width is 4ft $A = (3+2w)(w)$
15	less → subtract (−) times → multiply (·) is → equal (=) 		b=base h=height $b = 4h - 2$ $A = \frac{1}{2}bh$ $A = \frac{1}{2}(4h-2)h$ $h = 8$ $A = \frac{1}{2}(4 \cdot 8 - 2)8$ $= 120 m^2$
16			$a = \sqrt{b}$ check: if $a=7$ and $b=49$ $7 \stackrel{?}{=} \sqrt{49}$ $7 = 7$ ✓

19.) a)  b.) $y = 2x + 4$