Name Key Period ____ Date ____

Algebra 1

Lesson 3.3 – Writing Functions (Day 2)

Examples

Determine a relationship between the *x*- and *y*-values. Then write an equation.

1.

x	-2	-1	0	1	2
y	8	4	0	-4	-8

·-4 +10

$y = -4x$

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

·-2 -3

$y = x - 3$

When a function describes a real-world situation, every real number is not always reasonable for the domain and range.

3. Golden Wings is performing Tarzan this weekend. Adult tickets are being sold for $10 each. Identify the dependent and independent variables for the situation. Write an equation in function notation.

Dependent: total amount of $

Independent: # of tickets

Equation: $f(x) = 10x$

How much money would they bring in if they sold 1200 tickets? $12,000

$f(x) = 10x$
$f(1200) = 10(1200)$
$= 12,000$

4. Jenna uses 4 cups of flour for each batch of her secret chocolate chip recipe. Identify the dependent and independent variables for the situation. Write an equation in function notation.

Dependent: total cups of flour

Independent: # of batches of cookies

Equation: $f(x) = 4x$

How much flour will Jenna need to make 5 batches of cookies? 20 cups

$f(x) = 4x$
$f(5) = 4(5)$
$f(5) = 20$

Evaluate each function for the given input values.

5. For $f(x) = -2x + 4$, find $f(x)$ when $x = -\frac{1}{3}$

$f(-\frac{1}{3}) = -2(\frac{1}{3}) + 4$
$f(-\frac{1}{3}) = -\frac{2}{3} + 4$
$f(-\frac{1}{3}) = \frac{14}{3}$

6. For $g(x) = -x^2 + 2$, find $g(x)$ when $x = -6$

$g(-6) = -(-6)^2 + 2$
$g(-6) = -36 + 2$
$g(-6) = -34$

*use parentheses when plugging in calc

7. For $f(x) = \frac{3 - x}{2}$, find $f(x)$ when $x = -5$

$f(-5) = \frac{3 - (-5)}{2}$

$f(-5) = \frac{8}{2} = 4$

8. For $g(x) = -\frac{2}{3}x + 2$, find $g(x)$ when $x = 9$

$g(9) = -\frac{2}{3}(9) + 2$
$g(9) = -6 + 2$
$g(9) = -4$

Find the range for the following domain: D = $\{-3,-1,0,1,3\}$ R: $\{-8,-4,-2,2,4\}$

9. $f(x) = -2|x+3|+4$

$f(-3) = -2|-3+3|+4$
$f(-3) = -2|0|+4$
$f(-3) = -2(0)+4$
$f(-3) = 0+4$
$f(-3) = 4$

$f(-1) = -2|-1+3|+4$
$f(-1) = -2|2|+4$
$f(-1) = -2(2)+4$
$f(-1) = -4+4$
$f(-1) = 0$

$f(0) = -2|0+3|+4$
$f(0) = -2|3|+4$
$f(0) = -2(3)+4$
$f(0) = -6+4$
$f(0) = -2$

$f(1) = -2|1+3|+4$
$f(1) = -2|4|+4$
$f(1) = -8+4$
$f(1) = -4$

$f(3) = -2|3+3|+4$
$f(3) = -2|6|+4$
$f(3) = -2(6)+4$
$f(3) = -12+4$
$f(3) = -8$

Examples

10. Kevin has enough money to buy at most 4 pizzas at $12.00 each, if he decides to buy any at all.
Write a function to describe the total cost for each number of pizzas.
Find the reasonable domain and range of the function.

$f(x) = 12x$

D: $\{0,1,2,3,4\}$

$f(0) = 12(0) = 0$
$f(1) = 12(1) = 12$
$f(2) = 12(2) = 24$
$f(3) = 12(3) = 36$
$f(4) = 12(4) = 48$

R: $\{0,12,24,36,48\}$

11. Joey has a summer job where he works between 10 and 15 hours per week. He makes $9 per hour.
Write a function to describe the amount of money made for each number of hours worked.
Find the reasonable domain and range for the function.

$f(x) = 9x$

D: $\{10,11,12,13,14,15\}$

$f(10) = 9(10) = 90$
$f(11) = 9(11) = 99$
$f(12) = 9(12) = 108$
$f(13) = 9(13) = 117$
$f(14) = 9(14) = 126$
$f(15) = 9(15) = 135$

R: $\{90,99,108,117,126,135\}$