Name ________________________________ Date ___________ Class ___________

LESSON 1-7

Practice B
Function Notation

For each function, evaluate $f(-1)$, $f(0)$, $f\left(\frac{3}{2}\right)$.

1. $g(x) = -4x + 2$ ________________________

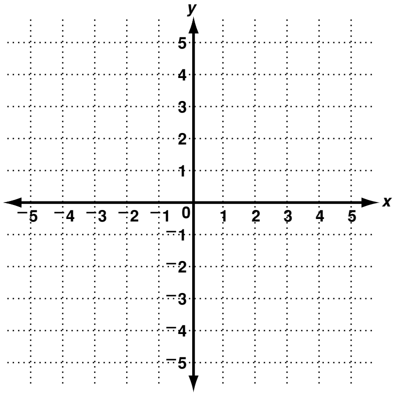
2. $h(x) = x^2 - 3$ ________________________

3. $f(x) = 3x^2 + x$ ________________________

4. $f(x) = \frac{x}{2} - 1$ ________________________

Graph each function. Then evaluate $f(-2)$ and $f(0)$.

5. $f(x) = x^2 - 4$



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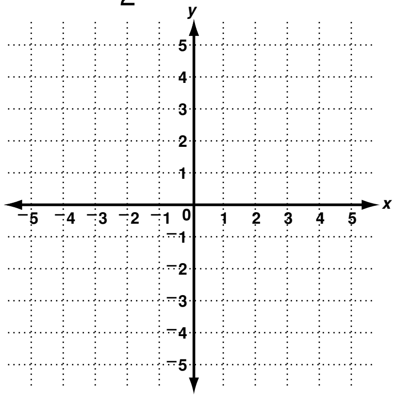
6. $f(x) = -\frac{3}{2}x + 1$



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Solve.

7. On one day the value of $1.00 U.S. was equivalent to 0.77 euro. On the same day $1.00 U.S. was equivalent to $1.24 Canadian. Write a function to represent the value of Canadian dollars in euros. What is the value of the function for an input of 5 rounded to the nearest cent, and what does it represent?

____

____

8. PC Haven sells computers at a 15% discount on the original price plus a $200 rebate. Write a function to represent the final price of a computer at PC Haven. What is the value of the function for an input of 2500, and what does it represent?

____

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LESSON 1-7

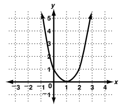
Practice A

Function Notation

Find each value of the function.

1. $f(x) = -5x + 9$ $\quad f(3) = -5(\underline{\ 3\ }) + 9 = -\underline{\ 15\ } + 9 = \underline{\ -6\ }$

2.

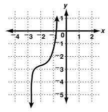


$f(0) = \underline{\ 1\ }$

$f(1) = \underline{\ 0\ }$

$f(2) = \underline{\ 1\ }$

3.

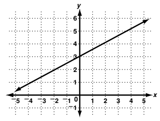


$f(-1) = \underline{\ -2\ }$

$f(-2) = \underline{\ -3\ }$

$f(-3) = \underline{\ -4\ }$

4.



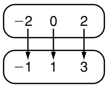
$f(-4) = \underline{\ 1\ }$

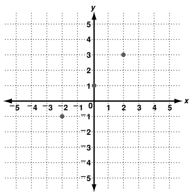
$f(0) = \underline{\ 3\ }$

$f(2) = \underline{\ 4\ }$

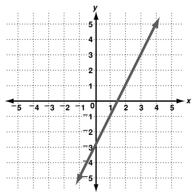
Graph each function.

5.





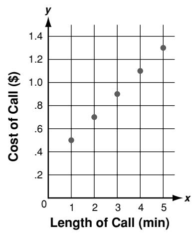
6. $f(x) = 2x - 3$



7. Ty uses the function $g(x) = 0.5 + 0.2(x - 1)$ to calculate the cost in dollars of using a calling card to make a long-distance call lasting x minutes. The variable x must be a whole number. Graph the function. Then determine the cost of a 10-minute call.

$2.30

Calling Card Costs



LESSON 1-7

Practice B

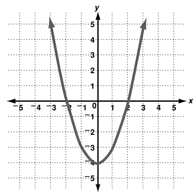
Function Notation

For each function, evaluate $f(-1)$, $f(0)$, $f\left(\frac{3}{2}\right)$.

1. $g(x) = -4x + 2$ $\quad$ $6, 2, -4$
2. $h(x) = x^2 - 3$ $\quad$ $-2, -3, -\frac{3}{4}$
3. $f(x) = 3x^2 + x$ $\quad$ $2, 0, 8\frac{1}{4}$
4. $f(x) = \frac{x}{2} - 1$ $\quad$ $-\frac{3}{2}, -1, -\frac{1}{4}$

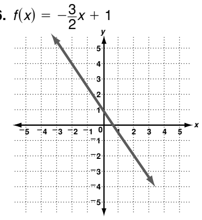
Graph each function. Then evaluate $f(-2)$ and $f(0)$.

5. $f(x) = x^2 - 4$



0, −4

6. $f(x) = -\frac{3}{2}x + 1$



4, 1

Solve.

7. On one day the value of $1.00 U.S. was equivalent to 0.77 euro. On the same day $1.00 U.S. was equivalent to $1.24 Canadian. Write a function to represent the value of Canadian dollars in euros. What is the value of the function for an input of 5 rounded to the nearest cent, and what does it represent?

$f(c) = \frac{0.77c}{1.24}$; $f(5) = 3.10$;

the value of $5 Canadian is equivalent to 3.10 euros.

8. PC Haven sells computers at a 15% discount on the original price plus a $200 rebate. Write a function to represent the final price of a computer at PC Haven. What is the value of the function for an input of 2500, and what does it represent?

$f(p) = 0.85p - 200$; $f(2500) = 1925$; $1925 is the final, discounted price of a computer with an original price of $2500.

LESSON 1-7

Practice C

Function Notation

A set of input values is sometimes referred to as the *replacement set* for the independent variable. Evaluate each function for the given replacement set.

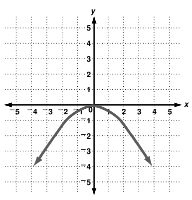
1. $f(x) = \frac{-x}{4} + 6$; $\left\{-8, \frac{1}{2}, 1.6, 3\right\}$

$8, 5\frac{7}{8}, 5.6, 5\frac{1}{4}$

2. $g(x) = x(-2x + 3)$; $\left\{-4\frac{1}{2}, -\frac{1}{3}, 3, 6\right\}$

$-54, -\frac{11}{9}, -9, -54$

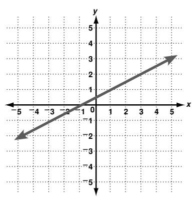
3.



$\left\{-3, -2.5, 1\frac{1}{4}, 3\right\}$

$-2\frac{3}{4}, -2, -\frac{1}{2}, -2\frac{3}{4}$

4.



$\left\{-3, -\frac{1}{2}, 1.5, 3\right\}$

$-1, \frac{1}{4}, 1\frac{1}{4}, 2$

Explain what a reasonable domain and range would be for each situation.

5. the number of 8-slice pizzas needed to feed x people at a party where each person will eat 3 slices of pizza Possible answer: The domain is a positive whole number, x, representing the number of people at a party; the range is a positive whole number, $\frac{3x}{8}$, representing the number of pizzas needed.

6. the time it takes to bicycle m miles at a rate of 15 miles per hour

Possible answer: The domain is a positive rational number, m, representing the number of miles traveled; the range is a positive rational number, $\frac{m}{15}$, representing the time required.

Write a function to represent each situation.

7. Sharon earns $30 for each lawn she mows. $\quad f(a) = 30a$

8. Each large tub of ice cream makes 80 single-dip cones. A single-dip cone sells for $1.49. $\quad f(t) = \$1.49(80t)$

LESSON 1-7

Reteach

Function Notation

You can use function notation to write a function.

$f(x) = 2x - 3$

Read: f of x equals $2x - 3$. — Output $f(x)$ — Input x

Evaluate $f(0)$, $f\left(\frac{1}{2}\right)$, and $f(-2)$ for $f(x) = 2x^2 - x + 1$.

$f(0) = 2(0)^2 - 0 + 1 = 1$ — Subsitute 0 for x in the function and evaluate.

$f\left(\frac{1}{2}\right) = 2\left(\frac{1}{2}\right)^2 - \frac{1}{2} + 1 = 2\left(\frac{1}{4}\right) - \frac{1}{2} + 1 = \frac{1}{2} - \frac{1}{2} + 1 = 1$

Substitute $\frac{1}{2}$ for x.

$f(-2) = 2(-2)^2 - (-2) + 1 = 2(4) + 2 + 1 = 8 + 2 + 1 = 11$

Substitute −2 for x.

For each function, evaluate $f(0)$, $f\left(\frac{3}{2}\right)$, and $f(-1)$.

1. $f(x) = 4x^2 - 2$

$f(0) = 4(0)^2 - 2$ $\quad f\left(\frac{3}{2}\right) = 4\left(\frac{3}{2}\right)^2 - 2$ $\quad f(-1) = 4(-1)^2 - 2$

−2 $\quad$ 7 $\quad$ 2

2. $f(x) = -2x + 10$

$f(0) = \underline{\ 10\ }$ $\quad f\left(\frac{3}{2}\right) = \underline{\ 7\ }$ $\quad f(-1) = \underline{\ 12\ }$

3. $f(x) = x^2 + 6x$

$f(0) = \underline{\ 0\ }$ $\quad f\left(\frac{3}{2}\right) = \underline{\ \frac{45}{4}\ }$ $\quad f(-1) = \underline{\ -5\ }$