Key

Math 1

Name _____

2-3 Introduction to Functions

Date_____

- *I can interpret function notation and explain how the output of a function is matched to its input.*
- *I can interpret the meaning of an ordered pair*

Frank is an employee at Burger Castle and earns $7.30 per hour, working the front counter. His salary is calculated by using the rule $y = 7.30x$, where x denotes the number of hours he works and y denotes his total salary.

# of hours worked	1	2	3	4	5
Total Salary	$7.30	$14.60	$21.90	$29.20	$36.50

We will name this function by using function notation: $f(x) = 7.30x$

$f(1) =$ 7.30, $f(2) =$ 14.60, $f(4) =$ \$29.20, $f(5) =$ \$36.50

Explain what f (1) = 7.30 means in this problem situation. If he works one hour, he gets paid $7.30.

$f(8) =$ $58.40 $f(28) =$ $204.40, $f(15) =$ \$109.50, $f(21) =$ \$153.30

Sally also works at Burger Castle, but she earns $8.15 per hour and a $15.00 bonus for working the late shift. Her salary is calculated by using the rule $y = 8.15x + 15$, where x denotes the number of hours she works and y denotes her total salary.

We will name this function by using function notation: $s(x) = 8.15x + 15$

Given x find $s(x)$

x	$s(1)$	$s(5)$
$s(x)$	$23.15	$55.75

Given $s(x)$ find x

$s(6)$	$s(33)$
\$63.90	\$283.95

$63.90 = 8.15x + 15$

$-15 \quad -15$

$48.90 = 8.15x$

Solve problems 1-3 using function notation.

1. If Sally worked for 38 hours, then what would be her total salary?
   $s(38) = 8.15(38) + 15 = 324.7$ → $s(38) = 324.7
2. If Sally made $235.05, then how many hours did she work?
   $235.05 = 8.15x + 15$ $x = 27$ $s(27) = 235.05
3. Sally earned $178.00 and $357.30 during two weeks of work. How many hours did Sally work for those two weeks?
   $178 = 8.15x + 15$ $x = 20$ hours $s(20) = 178
   $357.30 = 8.15x + 15$ $x = 42$ hours $s(42) = 357.30
   62 total hours
4. Explain why Sally's total salary is a function of hours worked.
   How much she gets paid depends on how many hours she works.

OVER→

Function Practice:

$f(x) = 3x$ Write as an ordered pair $(x, f(x))$

$f(1) =$ 3 (1 , 3)

$f(2) =$ 6 (2 , 6)

$f(-5) =$ -15 (-5 , -15)

$f(1.5) =$ 4.5 (1.5 , 4.5)

$f\left(\frac{2}{3}\right) =$ 2 ($\frac{2}{3}$, 2)

$f(0) =$ 0 (0 , 0)

Find the value of x when $f(x) = 15$. (5 , 15) → $\frac{15}{3} = \frac{3x}{3}$, $x = 3$

Find the value of x when $f(x) = 0$. (0 , 0)

Find the value of x when $f(x) = -12$. (-4 , -12)

Find the value of x when $f(x) = 10.5$. (3.5 , 10.5)

Find the value of x when $f(x) = -15$. (-5 , -15)

Write a function rule, in function notation, that could result in the following ordered pairs:

x	f(x)
-2	-4
-1	-2
0	0
1	2
2	4

$f(x) = 2x$

x	f(x)
-2	-3
-1	-1
0	1
1	3
2	5

$f(x) = 2x + 1$

x	f(x)
-2	4
-1	1
0	0
1	1
2	4

$f(x) = x^2$

x	f(x)
-2	-4
-1	-1
0	0
1	-1
2	-4

$f(x) = -x^2$