Math 8

Name KEY
Date _____

Sec 4.6 – Creating a Table of Values Notes

1. Investigation

At the Steveston Fair, Mischa sells hot dogs for $3 each and drinks for $2 each. A meal consists of hot dogs and only one drink.

a) How much would a meal of one hot dog and one drink cost? $3 + $2 = $5

b) How much would a meal of two hot dogs and one drink cost? 2(3) + 2 = 8

c) How much would a meal of three hot dogs and one drink cost? 3(3) + 2 = 11

d) How much would a meal of nine hot dogs and one drink cost? 9(3) + 2 = 29

e) How many hot dogs can be ordered when a meal costs $35? 35 = x(3) + 2 ∴ 11 hot dogs

Questions

1) Write an algebraic equation that relates the number of hot dogs ordered to the total cost of the meal. Identify the variables.

C = 3x + 2 C = cost
3 = numerical coefficient
2 = constant

2) Organize your information in a table of values where the first column represents the number of hot dogs ordered and the second column represents the total cost of the meal.

# of hot dogs	cost
1	5
2	8
3	11
4	14
5	17
6	20
7	23
8	26
9	29
10	32
11	35

You can make an eqtn just by looking at the table

1 × 3 = (3)
2 × 3 = (6)
3 × 3 = (9)

} if we add 2 Then you get 5, 8, 11

3) State any patterns that you see in your table.

The total cost goes up by $3 for every additional hot dog.

So.... C = 3x + 2

Note: The numerical coefficient is also 3.

Summary:
When you know the total cost of a meal, how can you determine the number of hot dogs ordered?

Solve using reverse BEDMAS.

35 = 3x + 2

33 = 3x

x = 11 hot dogs.

constant = 2

When one value is related to another value, we can write a mathematical relationship to relate the two called a relation.

Example – Write the relation between the number of hot dogs ordered to the total cost of the meal.

The input of the relation is h and the output of the relation is $3h + 2$.

To organize our input and output, we can write a table of values horizontally or vertically:

h	1	2	3	4	5
C	5	8	11	14	17

h	C
1	5
2	8
3	11
4	14
5	17

We can say that the input and output is a pair of numbers called an ordered pair.

Some ordered pairs for the hot dog example are:

(1, 5), (2, 8), (3 , 11), (4 , 14), (5, 17), (h, C)

Often, relations are written with x as the input and y as the output.

Eg. $y = 2x$ $y = x + 6$ $y = -2x + 1$

Practice

1. Make a table of values for the relation $y = 2x$.

x	–3	–2	–1	0	1	2	3	4
y	–6	–4	–2	0	2	4	6	8

2. Make a table of values for the relation $y = -5x - 3$.

x	–3	–2	–1	0	1	2	3
y	12	7	2	–3	–8	–13	–18

3. The equation of a linear relation is $y = -3x + 2$. Find the missing numbers in the following ordered pairs. Show how you find the missing ordered pair.

a) (–1, 5) b) (1, –1) c) (3, –7) d) (5, –13)

$y = -3(-1) + 2$
$= 3 + 2$
$= 5$

$y = -3(1) + 2$
$y = -3 + 2$
$= -1$

$-7 = -3x + 2$
$-9 = -3x$
$3 = x$

$-13 = -3x + 2$
$-15 = -3x$
$5 = x$