**Evaluating Expressions & Equations**

An algebraic expression is made up of one or more terms including, at least one variable; but does not have an equivalent (no “=”). Thus, these expressions can have an infinite number of integer solutions.

2x 🡨x can be any number so this equation is “2 times anything = something”

When we evaluate an expression we chose, or are given, a value for the variable to give us a solution.

If x = 5, then 2x = 2(5) = 2x5 = 10

We can also evaluate expressions using a Table of Values to give us a set of values, which can used as a set of coordinate pairs to then graph the equation or expression. To evaluate an equation we need to have two different variables (2x + 5 = y).

|  |  |  |  |
| --- | --- | --- | --- |
| x | 2x | y | Coordinate Pair (x, y)  When choosing values for your table:   1. Use (-1, 0, 1) so you will cross the y-axis 2. If you have a fraction make your values multiples of the denominator. 3. If you have you should use the numbers -3, 3, 6 so it will come out to -1, 1, and 2. Then you will have the points (-3, -1), (3,1) & (6, 2). |
| –1 |  |  |  |
| 0 |  |  |  |
| 1 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| x | 2x+ 5 = | y | Coordinate Pair (x, y) |
| –1 |  |  |  |
| 0 |  |  |  |
| 1 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| x |  | y | Coordinate Pair (x, y) |
| 2 |  |  |  |
| 4 |  |  |  |
| 6 |  |  |  |

Use <http://www.panago.com/menu/create_your_own> to compare the cost of a make your own version of a pizza to the cost for the same pizza on the website.

**Evaluating Expressions & Equations**

Name: Div.: Date:

Evaluate given x = –2, y = 3, and z = -4:

1. + 3
2. – 6
3. 8 –
4. + 2
5. 2 + 1
6. 4 + 2
7. 17 –
8. + 1

Evaluate given a = 1.5, b = 2.5, and c = 3.5

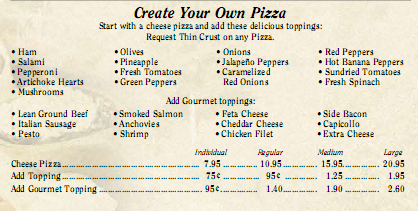
1. a + b + c
2. ab – 0.75
3. 5a – 3b
4. 1.2a + 3.2b
5. 5.65 – ab
6. 2.4b – a
7. ac – 2b
8. ab – bc – ca
9. 2a – b + 2c
10. 3bc – 5a

Copy and complete the following tables:

|  |  |  |
| --- | --- | --- |
| w | w - 5 |  |
| 7 | 7- 5 | 2 |
| 15 |  |  |
| 20 |  |  |
| 34 |  |  |

|  |  |  |
| --- | --- | --- |
| f | 3f |  |
| 6 |  |  |
| 8 |  |  |
|  | 3 (36) |  |
|  |  | 48 |
| w | w2 |  |
| 1 |  |  |
| 2 |  |  |
|  | 3 x 3 |  |
| 4 |  |  |

|  |  |  |
| --- | --- | --- |
| m |  |  |
| 3 |  | 7 |
| 4 |  | 8 |
| 15 |  | 19 |
| 23 |  |  |

****

Create and expression that will find the cost for:

1. Regular Sized Pizza with only Toppings:
2. Regular Sized Pizza with only Gourmet Toppings:
3. Regular Sized Pizza with Gourmet & Regular Toppings:

Use your equations from above to fill in the following tables:

|  |  |  |
| --- | --- | --- |
| Regular Pizza + Toppings | | |
| t |  | Cost ($) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
|  |  | 15.70 |

|  |  |  |
| --- | --- | --- |
| Regular Pizza + Gourmet Toppings | | |
| g |  | Cost ($) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
|  |  | 15.55 |

Blue bird Taxi charges: $3.25 + $1.88 per km

Write an expression for the cost of a taxi ride (d for distance in km):

Write an expression for each:

How to write an expression based on a table of values:

1. Take two y values and subtract the second from the first (in the order they show up).
2. Take two x values and subtract the second from the first (in the order they show up).
3. Divide the y value from 1) by the x value from 2)
4. That is your x coefficient , or slope (m)
5. Now use that coefficient (m) and the equation set up mx +b=y and your first two variables to solve for your still unknown (b).

\* What do you notice about your slope and the pattern of increases on the x and y sides of the table?

Example:

|  |  |
| --- | --- |
| x | Y |
| 1 | 7 |
| 2 | 10 |
| 3 | 13 |

Y values: 7-10 = -3

X Values: 1-2 = -1

Slope: -3/-1 = 3

mx + b = y

3x + b = y

Use first values of( x, y): 3(1) + b = 7

So, b = 4

3x + 4 = y

Now check to see if it works!

|  |  |
| --- | --- |
| Race Car Time (min) | |
| Time | Laps |
| 1 | 2 |
| 2 | 4 |
| 3 | 6 |

|  |  |
| --- | --- |
| Granola Bar Cost | |
| Bars | Cost ($) |
| 6 | 2.70 |
| 12 | 5.40 |
| 20 | 9.00 |

|  |  |
| --- | --- |
| x | y |
| 1 | 9 |
| 2 | 11 |
| 3 | 13 |
| 4 | 15 |

|  |  |
| --- | --- |
| x | y |
| 1 | 5 |
| 2 | 12 |
| 3 | 19 |
| 4 |  |

|  |  |
| --- | --- |
| x | y |
| 2 |  |
| 3 | 3 |
| 4 | 5 |
| 5 | 7 |