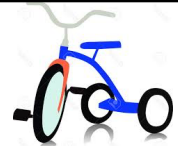


Date: _____

3.4 Communicate with Algebra



As with most parts of math, there is a set of vocabulary specific to algebra that we need to know so that we can understand processes and communicate our thinking clearly.

An algebraic expression is a mathematical expression composed of variable terms and constant terms. Terms are the building blocks of the expression, and are separated by addition and subtraction signs. The sign in front of a term is connected to it!!!

Example of an Algebraic Expression

List the terms in the example.

$$-2x + 5y^2 - 3xy + 7$$

Which ones do you think are constant terms? variable terms?



An algebraic expression like the one shown above is called a polynomial. That just means that it consists of one or more terms connected by addition and subtraction. There are three "special" types of polynomials that you will be asked to recognize called monomials, binomials, and trinomials. The prefix tells you how many terms there are in the polynomial.

How many terms would you expect to have in a: Example

- monomial?

- binomial?

- trinomial?

Each term is made up of two parts, a coefficient and a variable. Variables also have exponents attached to them.

Example: For the terms below, identify the coefficient and the variable(s).



$$-3xy^2$$

x

3

Practice Problems:

Identify each expression as a monomial, binomial, trinomial, or polynomial. Then state each term in the expression and identify the coefficient and variable(s) for each term.

1. $-2x^2 - 3xy + 7x$

2. $6x$

3. $9a - 12b$

4. $5xyz + 4x - 7y + 17z + 5$

5. $a - b^2 + 3$

The degree of a term is the sum of the exponents on its variables. Go back to the previous problem and state the degree for each term.

The degree of a polynomial is determined by the highest degree on any one term. State the degree of the entire expression in the previous example by examining the degree of each term and identifying the highest number.

We can classify a polynomial by the number of terms it has or by its degree.

Creating Polynomial Expressions to Model Situations and Solve Problems

When you are asked to create your own polynomial expression, you **MUST** clearly define your variables. If you are using 'a' to represent someone's age, you must state that in a sentence!!

Once you have written 'let' statements and an expression, read it back to yourself to make sure that you are creating a mathematical statement that makes sense in the context of the question.

Example: Mia is working as a swim instructor at the Vollmer this summer.

She will earn \$225 for the summer plus \$35 per children's lesson and \$20 per adult lesson that she gives. Write an expression to model Mia's total earnings for the summer.

If she gives 40 children's lessons and 12 adult lessons this summer, what are her total earnings?

