

Bellwork: Algebra

1. Write down your work for the week in your planner.
2. Write the following on your bellwork sheet for MONDAY:
LABOR DAY
3. Go back to your pink divider in your composition book and fill in the updated score for each statement.
4. Answer the following on your bellwork sheet for
TUESDAY

Name all sets that the following number belongs in:

$$\sqrt{55} - \sqrt{55}$$

Section 1 – Topic 2
Understanding Polynomial Expressions

A **term** is a constant, variable, or multiplicative combination of the two.

Consider $3x^2 + 2y - 4z + 5$.

How many terms do you see?

4

List each term.

$3x^2, 2y, -4z, 5$

This is an example of a **polynomial expression**. A polynomial can be one term or the sum of several terms. There are many different types of **polynomials**.

A monarchy has one leader. How many terms do you think a monomial has?

1

A bicycle has two wheels. How many terms do you think a binomial has?

2

A triceratops has three horns. How many terms do you think a trinomial has?

3

Type of Polynomial	Number of Terms	Example
Monomial	1	$3x^2$
Binomial	2	$6x + 10$
Trinomial	3	$x^2 + 8x - 11$
Polynomial	4^+	$x^3 + 2x^2 - 7x + 4$

degree 2

degree 3

Some important facts:

- The **degree of a monomial** is the sum of the exponent of the variables.
- The **degree of a polynomial** is the degree of the monomial term with the highest degree.

Sometimes, you will be asked to write polynomials in standard form.

- Write the monomial terms in descending
numerical order.
- The **leading term** of a polynomial is the term with the highest degree.
- The **leading coefficient** is the coefficient of the leading term.

1. Are the following expressions polynomials? If so, name the type of polynomial and state the degree. If not, justify your reasoning.

a. $8x^2y^3$

Yes;
Monomial;
degree 5

b. $\frac{2a^2}{3b}$

No. Variable in
the denominator

c. $\frac{3}{2}x^4 - 5x^3 + 9x^7$

Yes;
trinomial;
degree 7

d. $10a^8b^2 + 17ab^3c + 5a^7$

Yes;
trinomial;
degree 8

e. $2m + 3n^{-1} + 8m^2n$

No!
Negative
exponents

Try It!

2. Are the following expressions polynomials?

a. $\frac{1}{2}a + 2b^2$

<input checked="" type="radio"/> polynomial
<input type="radio"/> not a polynomial

b. 34

<input checked="" type="radio"/> polynomial
<input type="radio"/> not a polynomial

c. $\frac{xy}{y^2}$

<input type="radio"/> polynomial
<input checked="" type="radio"/> not a polynomial

d. $2rs + s^4$

<input checked="" type="radio"/> polynomial
<input type="radio"/> not a polynomial

e. $xy^2 + 3x - 4y^{-1}$

<input type="radio"/> polynomial
<input checked="" type="radio"/> not a polynomial

3. Consider the polynomial $3x^4 - 5x^3 + 9x^7$.

a. Write the polynomial in standard form.

$$9x^7 + 3x^4 - 5x^3$$

b. What is the degree of the polynomial?

7

c. How many terms are in the polynomial?

3

d. What is the leading term?

$$9x^7$$

e. What is the leading coefficient?

9

BEAT THE TEST!

1. Match the polynomial in the left column with its descriptive feature in the right column.

A. $x^3 + 4x^2 - 5x + 9$

I. Fifth-degree polynomial **B**

B. $5a^2b^3$

II. Constant term of -2 **G**

C. $3x^4 - 9x^3 + 4x^9$

III. Seventh-degree polynomial **E**

D. $7a^6b^2 + 18ab^3c - 9a^7$

IV. Leading coefficient of 3 **F**

E. $x^5 - 9x^3 + 2x^7$

V. Four terms **A**

F. $3x^3 + 7x^2 - 11$

VI. Eighth-degree polynomial **D**

G. $x^2 - 2$

VII. Equivalent to $4x^9 + 3x^4 - 9x^3$ **C**

