

NEW YORK TIMES BESTSELLER

THE BOOK THAT INSPIRED THE FILM

THE AMERICAN DREAM  
AND THE UNTOLD STORY OF  
THE BLACK WOMEN MATHEMATICIANS  
WHO HELPED WIN THE SPACE RACE

# HIDDEN FIGURES



MARGOT LEE SHETTERLY

1. Visit [diddukewin.com](http://diddukewin.com)
2. Book on your desk for ten minutes of reading.

# Announcements

- Polynomials test next Thursday
- I will need some time to grade yesterday's Exponents Test, thank you for your patience
- Lots of absences the past few weeks - be sure to make a plan with me!
- Test Corrections for Exponents 1 Test due today
- Hidden Figures Chapter 7 & 8 due Monday
  - I will post 9 and 10 tomorrow so people can continue working ahead... this is highly recommended!

# Hidden Figures Due Dates

- 8 & 9 due Monday
- 10-13 due March 4
- 14-17 due March 11
- 18-21 due March 18
- 22 & 23 due March 25 → Book completed!

When we have finished the novel,  
we will watch the movie!



# Unit Map - Polynomials

Thursday - Intro to Polynomials (definitions and degrees) & Adding/Subtracting Polynomials

Friday - Multiplying and Factoring

Monday - Multiplying Binomials

Tuesday - Multiplying Special Cases

Wednesday - Polynomials Review

**Thursday - Polynomials Test**

# Adding and Subtracting Polynomials

2/21/2019

## Important Vocabulary

**Monomial:**

**Polynomial:**

**Degree of a Polynomial:**

The \_\_\_\_\_ of all the exponents within the polynomial.

**Standard form of a Polynomial:**

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a monomial or a sum of monomials. example:  
 $3x^4 + 5x^2 - 7x + 1$

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The sum of all the exponents within the polynomial.

**Standard form of a Polynomial:**

The degrees of the monomial terms decrease from left to right.



## Problem 1 Finding the Degree of a Monomial

What is the degree of each monomial?

**A**  $5x$  Degree: 1  $5x = 5x^1$ . The exponent is 1.

**B**  $6x^3y^2$  Degree: 5 The exponents are 3 and 2. Their sum is 5.

**C** 4 Degree: 0  $4 = 4x^0$ . The degree of a nonzero constant is 0.



**Got It?** 1. What is the degree of each monomial?

a.  $8xy$

b.  $-7y^4z$

c. 11

# Classifying Polynomials

Polynomial	Degree	Name Using Degree	Number of Terms	Name Using Number of Terms
6				
$5x+9$				
$4x^2+7x+3$				
$2x^3$				
$8x^4-2x^3+3x$				

Polynomial	Degree	Name Using Degree	Number of Terms	Name Using Number of Terms
6	0	Constant	1	Monomial
$5x + 9$	1	Linear	2	<b>Binomial</b>
$4x^2 + 7x + 3$	2	Quadratic	3	<b>Trinomial</b>
$2x^3$	3	Cubic	1	Monomial
$8x^4 - 2x^3 + 3x$	4	Fourth degree	3	Trinomial

# Standard Form of a Polynomial

$$3x^4 + 5x^2 - 7x + 1$$

Degree of each monomial →      4                      2                      1                      0

The standard form of a polynomial means that the degree of its monomial terms decrease from left to right.

Write each polynomial in standard form. What is the name of the polynomial based on its number of terms?

a)  $3x + 4x^2$

b)  $4x - 1 + 5x^3 + 7x$

Write each polynomial in standard form. What is the name of the polynomial based on its number of terms?

a)  $3x + 4x^2$

$4x^2 + 3x$  Place terms in order.

This is a quadratic binomial.

b)  $4x - 1 + 5x^3 + 7x$

$5x^3 + 4x + 7x - 1$  Place terms in order.

$5x^3 + 11x - 1$  Combine like terms.

This is a cubic trinomial.



- c) Write  $2x - 3 + 8x^2$  in standard form. What is the name of the polynomial based on its degree and number of terms?

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**3. a.**  $8x^2 + 2x - 3$ , quadratic trinomial

## To ADD – combine like terms

1.  $(4a^2 + 7a - 12) + (9a^2 - 6 + 2a)$

2.  $(3a^2 - 3ab - b^2) + (4ab + 6b^2)$

**Travel** A researcher studied the number of overnight stays in U.S. National Park Service campgrounds and in the backcountry of the national park system over a 5-yr period. The researcher modeled the results, in thousands, with the following polynomials.

$$\text{Campgrounds: } -7.1x^2 - 180x + 5800$$

$$\text{Backcountry: } 21x^2 - 140x + 1900$$

In each polynomial,  $x = 0$  corresponds to the first year in the 5-yr period. What polynomial models the total number of overnight stays in both campgrounds and backcountry?

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**Method 1** Add vertically.

Line up like terms. Then add the coefficients.

$$\begin{array}{r} -7.1x^2 - 180x + 5800 \\ + 21x^2 - 140x + 1900 \\ \hline 13.9x^2 - 320x + 7700 \end{array}$$

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**Method 2** Add horizontally.

Group like terms. Then add the coefficients.

$$\begin{aligned} & (-7.1x^2 - 180x + 5800) + (21x^2 - 140x + 1900) \\ &= (-7.1x^2 + 21x^2) + (-180x - 140x) + (5800 + 1900) \\ &= 13.9x^2 - 320x + 7700 \end{aligned}$$

To SUBTRACT – distribute a  $-1$  then combine like terms

$$(x^3 - 3x^2 + 5x) - (7x^3 + 5x^2 - 12)$$

**Method 1** Subtract vertically.

$$\begin{array}{r} x^3 - 3x^2 + 5x \\ - (7x^3 + 5x^2 - 12) \\ \hline \end{array}$$

Line up like terms.

$$\begin{array}{r} x^3 - 3x^2 + 5x \\ -7x^3 - 5x^2 + 12 \\ \hline -6x^3 - 8x^2 + 5x + 12 \end{array}$$

Then add the opposite of each term in the polynomial being subtracted.

To SUBTRACT – distribute a  $-1$  then combine like terms

$$(x^3 - 3x^2 + 5x) - (7x^3 + 5x^2 - 12)$$

**Method 2** Subtract horizontally.

$$(x^3 - 3x^2 + 5x) - (7x^3 + 5x^2 - 12)$$

$$= x^3 - 3x^2 + 5x - 7x^3 - 5x^2 + 12$$

$$= (x^3 - 7x^3) + (-3x^2 - 5x^2) + 5x + 12$$

$$= -6x^3 - 8x^2 + 5x + 12$$

Write the opposite of each term in the polynomial being subtracted.

Group like terms.

Simplify.



# Practice

3.  $(6a^2 - 8a + 12b^3) - (-11a^2 + 6b^3)$

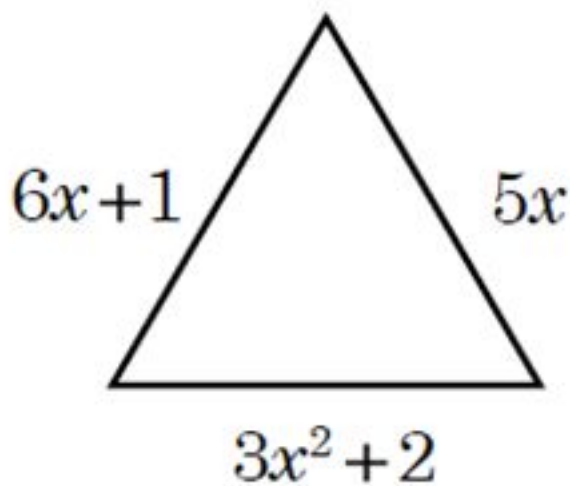
4.  $(7a - 10b) - (3a + 4b)$

5.  $7p - (9p + 3w)$

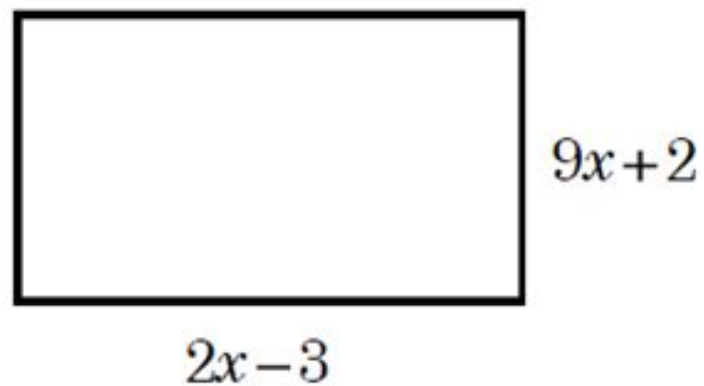
6.  $(12x - 19y) - 10y$

## Application – Perimeter of Figures

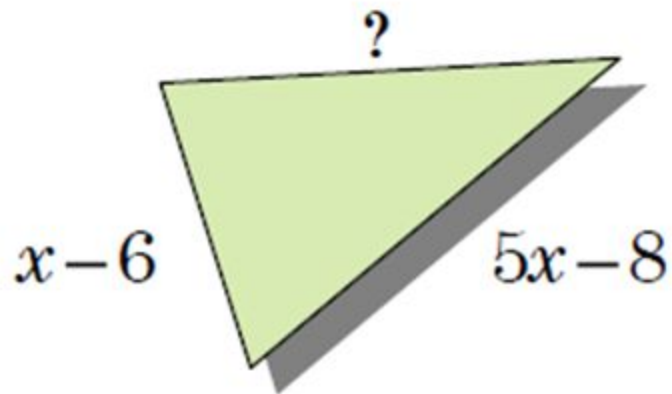
7. Find the perimeter of the triangle below.



8. Find the perimeter of the rectangle below.



9. If the perimeter of a triangle is  $8x - 11$ , what is the length of the missing side of the triangle?



# Homework

Adding and Subtracting Polynomials Worksheet