# Howdy!!!!

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# Classifying Polynomials

Polynomials are classified by **DEGREE** and **NUMBER OF TERMS**:

exponent

| Degree | Name | Example |
|---|---|---|
| 0 | constant | |
| 1 | linear | |
| 2 | quadratic | |
| 3 | cubic | |

| Terms | Name | Example |
|---|---|---|
| 1 | monomial | |
| 2 | binomial | |
| 3 | tripomial | |
| 4+ | polynomial | |

Complete the table below. Simplify the expressions or put in standard form if necessary.

| Polynomial | Degree | # of Terms | Classification |
|---|---|---|---|
| $8x$ | | | |
| $x^2 - 4$ | | | |
| $10$ | | | |
| $-24 + 3x - x^2$ | | | |
| $5x^3 - 12 + 8$ | | | |
| $7x - 9x + 1$ | | | |
| $4x^2 - 5x^3 - 4 + 5x - 1$ | | | |
| $2x + 3 - 7x^2 + 4x + 7x^2$ | | | |

Algebra 1 Unit 7: Quadratic Expressions Practice

**Day 1 – Classifying Polynomials** **Name:** _____

**Practice Assignment** **Date:** _____ **Block:** _____

1. *Simplify and put each polynomial into standard form (if necessary). Then classify the polynomials by degree and number of terms.*

| | ***Standard Form*** | ***Classification*** | |
|---|---|---|---|
| a. $4x^2 - 5x$ | $4x^2-5x$ | Quadratic | Binomial |
| b. $x + 2$ | $x+2$ | Linear | Binomial |
| c. 12 | 12 | Constant | monomial |
| d. $5x^2 - 5x + 1$ | $5x^2-5x+1$ | Quadratic | Trinomial |
| e. $2x + 3x^2 - 4x$ | | | |
| f. $4x^3 + 1 - 2x$ | | | |
| g. $x^2 - 2x + 9 - x^2$ | | | |
| h. $4x^3 - 2x + 2x^2 - 2x + 5$ | $4x^3+2x^2-4x+5$ | Cubic | polynomial |

2. *Create a polynomial that meets the following requirements:*

degree 2 terms 3

a. Quadratic Trinomial with coefficients of -2 and 3: $-2x^2+3x-12$

b. Quadratic Monomial with a negative coefficient: _____

c. Polynomial of degree 3 with three terms: _____

d. Polynomial with a constant of 7 and two terms: _____

e. Cubic binomial with leading coefficient of 4: _____

## Classify by the degree and terms:

| | |
|---|---|
| $-5-2x$<br>$-2x-5$<br>linear binomial | $-2x+5x+2x^2-4$<br>$2x^2+3x-4$<br>Quadratic Trinomial |
| $3(2x-4)+6x-3$<br>$6x-12+6x-3$<br>$12x-15$<br>linear binomial | $4x(2x+1)-6(x+3)$<br>$8x^2+4x-6x-18$<br>$8x^2-2x-18$<br>quadratic Trinomial |

Take out the following:

Order of Operations

Base

Expression

# Todays Notes

## Day 2 - Adding & Subtracting Polynomials

When adding, combine like terms.

a. $(4x^2 + 2x + 8) + (8x^2 + 3x + 1)$

$12x^2 + 5x + 9$

b. $(-2x + 5) + (-4x^2 + 6x + 9)$

$-4x^2 + 4x + 14$

c. $(5 - 2x + x^2 + 7) + (3x^2 + 7 - 4x)$

$4x^2 - 6x + 19$

d. $(2x^2 + x - 5) + (x + x^2)$

$3x^2 + 2x - 5$

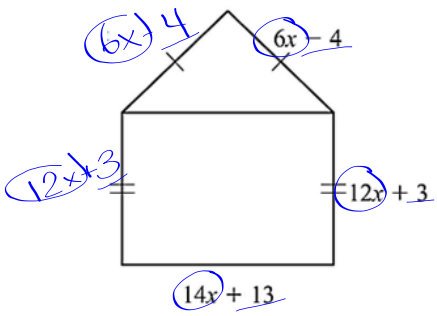
**Application**: Find an expression that represents the perimeter of the house.

What does it mean to find the perimeter of an object?

add all the outside s

Perimeter of the house:

$50x + 11$



## Subtracting Polynomials

Subtracting polynomials is similar to adding polynomials except we have to take care of the minus sign first. Subtracting polynomials require the following steps:

- Distribute the negative (minus sign)
- Combine like terms

a. $(7x^2 - 2x + 1) - (-3x^2 + 4x - 7)$

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

$10x^2 - 6x + 8$

b. $(3x^2 + 5x) - (4x^2 + 7x - 1)$

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

$-1x^2 - 2x + 1$

c. $(5x^2 - 4x + 8) - (-2 + 3x)$

$5x^2 - 4x + 8 + 2 - 3x$

$5x^2 - 7x + 10$

d. $(3 - 5x + 3x^2) - (-x + 2x^2 - 4)$

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

$1x^2 - 4x + 7$

e. $(8x + x^2 - 6) - (-10x + 7 - 2x^2)$

$8x + x^2 - 6 + 10x - 7 + 2x^2$

$3x^2 + 18x - 13$

f. $(-7x^2 + 8x - 4) - (2 - 14x^2)$

$-7x^2 + 8x - 4 - 2 + 14x^2$

$7x^2 + 8x - 6$

# Additional Practice

Algebra 1 Unit 7: Quadratic Expressions Practice

**Day 2 – Adding & Subtracting Polynomials** **Name:** _____

**Practice Assignment** **Date:** _____ **Block:** _____

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1. *Add the following polynomials. Make sure your final answer is in standard form.*

a. $(5x^2 - 4x + 7) + (8x^2 - 3x - 9)$

b. $(4x + 5x^2 + 8) + (-2x^2 + 8)$

c. $(7y^2 + 2y - 3) + (2 - 4y + 5y^2)$

d. $(3x^2 - 4x + 8) + (2x - 7x^2 - 5)$

2. *Subtract the following polynomials. Make sure your final answer is in standard form.*

a. $(2x - 4) - (5x + 7)$

b. $(3x^2 - 3x - 5) - (2x^2 + x - 6)$

c. $(4x^2 + 3x - 10) - (-4x^2 + 2x + 8)$

d. $(14x - 3x^2 + 2) - (3x + 4x^2 - 5)$

e. $(x - 5 + 5x^2) - (5 + 8x^2 - x)$

f. $(4x + 3x^3 - 7) - (-2x + 1 - 5x^3)$

g. $(2x^2 + 2x - 4) - (x^2 + 3x + 7)$

h. $(3n^2 + 13n^3 + 5n) - (7n + 4n^3)$

3. *Determine the missing values of m and n.*

a) $(4x^2 + 2x - 8) + (mx^2 - nx + 4) = 7x^2 - 5x - 4$

b) $(mx^2 - 8x + 3) - (6x^2 + nx - 4) = -2x^2 - 5x + 7$

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