

I can use precise vocabulary when discuss polynomials.

I can add, subtract and multiply polynomials.

Recall some of the vocabulary we discussed at the beginning of the first semester...

- constant:
  
- variable:
  
- coefficient:
  
- term:

Now for the new vocabulary,

- polynomial:
  
- monomial:
  
- binomial:
  
- trinomial:

For  $9x^2 + 5x - 6$ ,

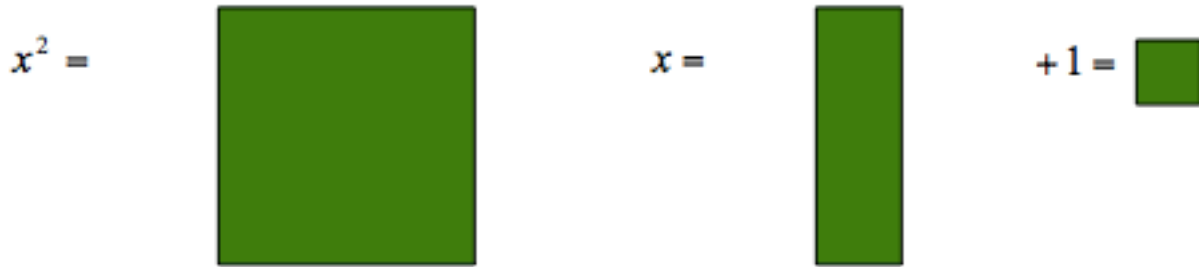
- a) How many terms are in this expression?
  
- b) Name the polynomial by its number of terms.
  
- c) What vocabulary word does the 5 represent?
  
- d) What vocabulary word does the -6 represent?
  
- e) Can you combine  $9x^2$  and  $5x$ ? Why or why not?

- like terms:

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We can use algebra tiles to represent a polynomial. Here are the tiles we will be using and their values.



The yellow tiles represent positive values; the red tiles represent negative values.

### ADDING POLYNOMIALS

- zero pair:

Consider  $(x^2 + 4x - 5) + (2x^2 - 2x + 8)$ . Draw this computation out with algebra tiles. Then evaluate.

Describe how to **add** polynomials without using algebra tiles.

Consider  $(x^2 + 6) + (3x^2 + x - 4)$ .

### SUBTRACTING POLYNOMIALS

Consider  $(4x^2 + 5x + 3) - (2x^2 + 3x + 2)$ . Draw this computation out with algebra tiles. Then evaluate.

Describe how to **subtract** polynomials without algebra tiles.

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

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Independent Practice: Add or subtract the polynomials.

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

2.  $-x^2 - 2x + 4 + 4x^2 + 9$

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

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

5.  $(2x^2 + 8x - 1) - (3x + 9)$

6.  $5x - 4x^2 + 12 - 9x - 20$

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## MULTIPLYING POLYNOMIALS

Consider  $x(2x + 3)$ . Draw out this computation with algebra tiles. Then evaluate.

Describe how to **multiply** a monomial by a polynomial.

Consider  $3x(2x + 1)$ .

Extend these ideas to multiply  $2x(x^4 + 8x^2 - 3x + 5)$ .

Consider  $(x + 2)(x + 4)$ . Draw out this computation with algebra tiles. Then evaluate.

Describe how to **multiply** a binomial by a binomial.

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Consider  $(2x + 1)(x - 3)$ .

Extend these ideas to multiply  $(x^2 + 3x - 6)(x + 5)$ .

.....  
Independent Practice: Multiply

1.  $-5x(x - 6)$

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

3.  $(4x + 8)(2x - 1)$

4.  $(x^2 - 6)(x + 2)$

5.  $(x - 9)(x - 3)$

6.  $(2x + 1)(6x^2 - 2x + 3)$