Making a Quadratic

(multiplying Polynomials)

Date:

Standards

A.SSE.1.a - Interpret parts of an expression, such as terms, factors, and coefficients.

A.SSE.2 - Use the structure of an expression to identify ways to rewrite it.

Essential Questions

- Where do quadratics come from?
- How do I multiply a monomial and binomial together?
- How do I multiply two binomials together?

Where do quadratics come from?

Polynomial	Degree	Name of the graph	Number of terms	Name of polynomial
$7x + 4$	1	Linear	2	binomial
$3x^2 + 2x + 1$	2	quadratic	3	trinomial
5	0	constant	1	monomial
$4x$	1	Linear	1	monomial

Binomials happen when you multiply:

1) A monomial and a binomial

2) A binomial and a binomial

How do I multiply a monomial and binomial together?

1. $x(x+3)$

x^2+3x

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

$-8x^2+4x$

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

$-20x^2+10$

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

$-6x^2+14x$

How do I multiply a monomial and binomial together?

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

$12d^2 + 20d - d(d - 7)$

$12d^2 + 20d - d^2 - 7d$

$11d^2 + 20d - 7\mathrm{d}$

$11d^2 + 13d$

6. $3(5x^2 + 2x - 4) - x(7x + 2)$

$15x^2 + 6x - 12 - x(7x + 2)$

$15x^2 + 6x - 12 - 7x^2 + 2x$

$8x^2 + 6x - 12 + 2x$

$8x^2 + 8x - 12$

How do I multiply two binomials together?

$$(x+2)(x+1)$$

	x	**2**
x	x^2	$2x$
1	x	**2**

$$x^2+3x+2$$

How do I multiply two binomials together?

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

	2x	**3**
3x	$6x^2$	$9x$
-4	$-8x$	-12

$$6x^2 + x - 12$$

How do I multiply two binomials together?

$$(x-1)(x-4)$$

	x	**-1**
x	x^2	$-x$
-4	$-4x$	4

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

How do I multiply two binomials together?

$$(x+2)(x+3)$$

	x	**2**
x	x^2	$2x$
3	$3x$	**6**

$$x^2 + 5x + 6$$

How do I multiply two binomials together?

$$(4x-5)(3x+2)$$

	4x	**-5**
3x	$12x^2$	$-15x$
2	$8x$	-10

$$12x^2-7x-10$$

How do I multiply two binomials together?

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

	x	**3**
2x	$2x^2$	$6x$
-4	$-4x$	-12

$$2x^2+2x-12$$

How do I multiply two binomials together?

$$(x+3)^2$$

	x	**3**
x	x^2	$3x$
3	$3x$	**9**

$$x^2+6x+9$$

How do I multiply two binomials together?

$$(2x+8)^2$$

	2x	**8**
2x	$4x^2$	$16x$
8	$16x$	**64**

$$x^2+6x+9$$

How do I multiply two binomials together?

$$(3x+7)^2$$

	3x	**7**
3x	$6x^2$	$21x$
7	$21x$	**49**

$$6x^2+42x+49$$

How do I multiply two binomials together?

$$(3x+7)^2$$

	3x	**7**
3x	$6x^2$	$21x$
7	$21x$	**49**

$$6x^2+42x+49$$

How do I multiply two binomials together?

$$(x-1)^2$$

	x	**-1**
x	x^2	$-x$
-1	$-x$	1

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

How do I multiply two binomials together?

$$(2x-6)^2$$

	2x	**-6**
2x	$4x^2$	$-12x$
-6	$-12x$	-36

$$4x^2-24x-36$$

How do I multiply two binomials together?

$$(x-4)^2$$

	x	**-4**
x	x^2	$-4x$
-4	$-4x$	16

$$x^2 - 8x + 16$$

How do I multiply two binomials together?

$$(x-1)(x+1)$$

	x	**-1**
x	x^2	$-x$
1	x	-1

$$x^2 - 1$$

How do I multiply two binomials together?

$$(2x+3)(2x-3)$$

	2x	3
2x	$4x^2$	$6x$
-3	$-6x$	-9

$$4x^2-9$$

How do I multiply two binomials together?

$$(3x+2)(3x-2)$$

	3x	2
3x	$9x^2$	$6x$
-2	$-6x$	-4

$$9x^2-4$$

REFLECTION:

1) Answer one of the essential questions
2) How have previous lessons helped or connect with this lesson?
3) What are you still confused on or what new info did you learn?

Homework: Finding the Vertex

1) $x^2 - 2x + 1$
   - Find the value of a, b, and c
   - Find the vertex of the parabola
   - Graph the parabola with the points before and after
2) $(x + 3)^2 - 4$
   - Find the value of a, h, and k
   - Find the vertex of the parabola
   - Graph the parabola with the points before and after