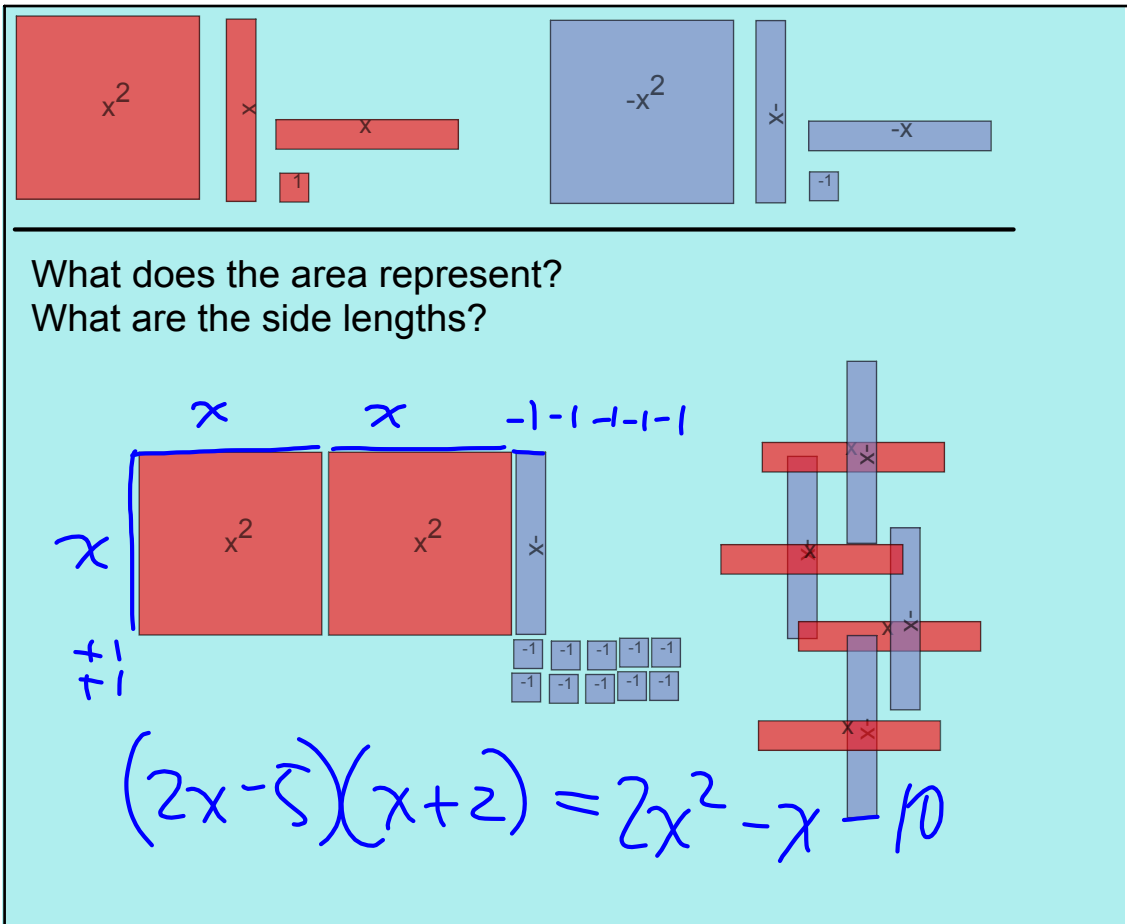


What does the area represent?
 What are the side lengths?

$$x^2 + 4x + 3 = (x+3)(x+1)$$

Mar 25-8:02 AM



What does the area represent?
 What are the side lengths?

$$(2x-5)(x+2) = 2x^2 - x - 10$$

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Multiplying Polynomials & Expanding Binomials

March 29/2016

Recall: Multiplying two linear terms together forms an area.

We can often represent this multiplication using algebra tiles.

On paper, we can represent this:

- (a) graphically (an area model), or
(b) algebraically

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Definitions:

1. Monomial - an expression with a single term

$3x$ or 7 or $5xy$ or a^2bc^3 $\frac{x}{5}$

2. Binomial - an expression with two terms

$(2x + 5)$ or $(a + 2b)$ or $(m^2 - pq)$

Examples of terms? $2x$ 5 a $2b$ m^2 pq

3. Trinomial - an expression with three terms

$x^2 + 5x + 6$ or $2xy + a + 5$

4. Polynomial - an expression with any number of terms.

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The diagram shows the components of the area model for $(x-1)(x-2)$. On the left, a red square represents x^2 , a vertical red strip represents x , a horizontal red strip represents x , and a small red square represents 1 . On the right, a blue square represents $-x^2$, a vertical blue strip represents x , a horizontal blue strip represents $-x$, and a small blue square represents -1 .

Evaluate: $(x - 1)(x - 2) = x^2 - 3x + 2$ f

The diagram shows the area model for $(x-1)(x-2)$ with a green outline. The large red square is labeled x^2 . The vertical red strip is labeled x . The horizontal red strip is labeled x . The small red square is labeled 1 . The vertical blue strip is labeled x . The horizontal blue strip is labeled $-x$. The small blue square is labeled -1 .

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Ex.1 Evaluate using an area model

(a) $(x - 1)(x - 2)$

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

x	x^2
x	$-x$

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

$= x^2 - 3x + 2$

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Evaluate: $(2x + 7)(3x - 5)$

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Ex.1 Evaluate using an area model... continued

(b) $(2x + 7)(3x - 5) = 6x^2 + 11x - 35$

	$2x + 7$	
$3x$	$6x^2$	$21x$
-5	$-10x$	-35

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Ex.2 Evaluate using the distributive property

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

$$= 6x^2 - 8x$$

	$2x$
$3x$	$6x^2$
-4	$-8x$

(b) $(2x + 3)(5x + 2)$

$$= 2x(5x+2) + 3(5x+2)$$

$$= 10x^2 + 4x + 15x + 6$$

$$= 10x^2 + 19x + 6$$

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

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

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Ex.3 Evaluate using FOIL (First-Outer-Inner-Last)

(a) $(3x - 5)(2x + 7)$

$$= 6x^2 + 21x - 10x - 35$$

$$= 6x^2 + 11x - 35$$

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Assigned Work:

p.166-167 # 3 - 5 (odd)
8 - 10 (odd)

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