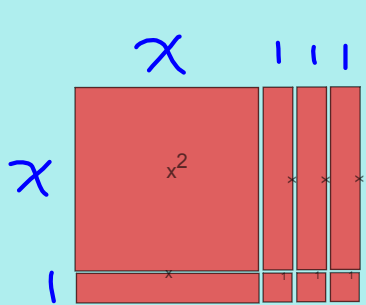
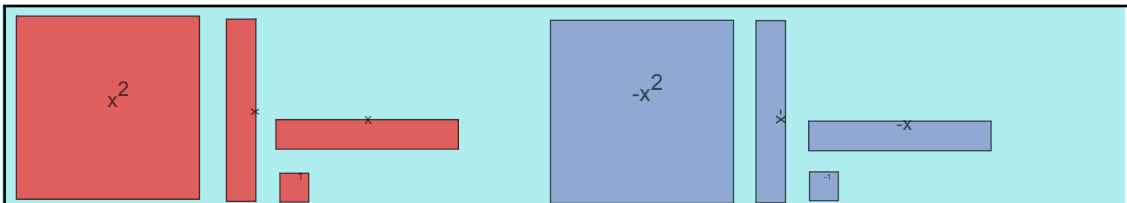


What does the area represent?
 What are the side lengths?

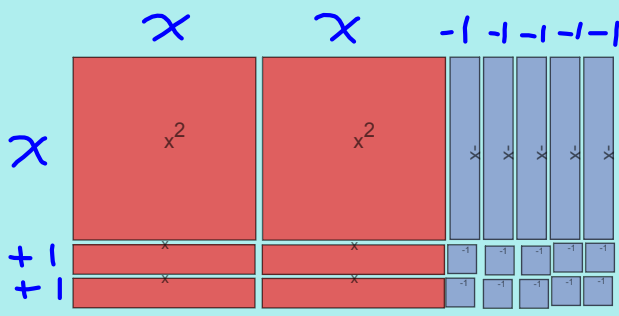


$$(x+3)(x+1) = x^2 + 4x + 3$$

Mar 25-8:02 AM



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



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

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Multiplying Polynomials & Expanding Binomials

March 24/2016

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

Mar 26-8:24 AM

Definitions:

1. Monomial - an expression with a single term

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

2. Binomial - an expression with two terms

$$(2x + 5) \text{ or } (a + 2b) \text{ or } (m^2 - pq)$$

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

3. Trinomial - an expression with three terms

$$x^2 + 5x + 6 \text{ or } 2xy + a + 5$$

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

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The diagram shows two sets of algebra tiles. The left set, in red, represents $(x-1)(x-2)$ with a large square labeled x^2 , a vertical strip labeled x , a horizontal strip labeled x , and a small square labeled 1 . The right set, in blue, represents $(x-1)(x-2)$ with a large square labeled $-x^2$, a vertical strip labeled x , a horizontal strip labeled x , and a small square labeled -1 .

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

A grid diagram for $(x-1)(x-2)$ with a vertical line on the left and a horizontal line on top. The grid is divided into four regions: a large red square labeled x^2 , a blue vertical strip labeled x , a blue horizontal strip labeled x , and a small red square labeled 1 .

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Ex.1 Evaluate using an area model

(a) $(x - 1)(x - 2) = x^2 - 3x + 2$

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

$x \boxed{x^2} \quad x \boxed{-2x}$

Oct 24-11:29 PM

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

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

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

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

Ex.2 Evaluate using the distributive property

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

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

| | | |
|------|----------|------|
| | $5x + 2$ | |
| $2x$ | $10x^2$ | $4x$ |
| $+3$ | $15x$ | 6 |

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

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

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

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

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

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

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

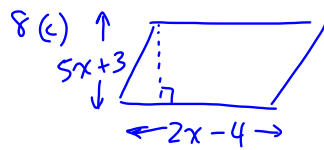
$$= 6x^2 + 11x - 35$$

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Assigned Work:

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

8c 9e 10a



$$A = l \times h$$

$$= (2x-4)(5x+3) \quad (x+3)(x+3)$$

$$\begin{aligned} 9(e) & (4x-1)(4x+1) - (x+3)^2 \\ & = (16x^2 + 4x - 4x - 1) - (x^2 + 3x + 3x + 9) \\ & = 1(16x^2 - 1) - 1(x^2 + 6x + 9) \\ & = 16x^2 - 1 - x^2 - 6x - 9 \\ & = 15x^2 - 6x - 10 \end{aligned}$$

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$$\begin{aligned} 10(a) & (x+y)(2x+3y) \\ & = 2x^2 + 3xy + 2xy + 3y^2 \\ & = 2x^2 + 5xy + 3y^2 \end{aligned}$$

| | | |
|-------|--------|--------|
| | x | $+y$ |
| $2x$ | $2x^2$ | $2xy$ |
| $+3y$ | $3xy$ | $3y^2$ |

Mar 30-2:03 PM