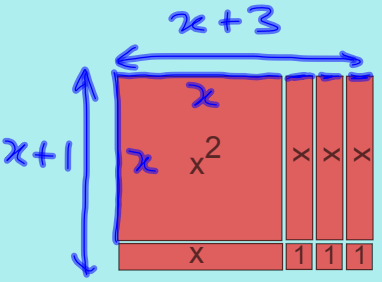
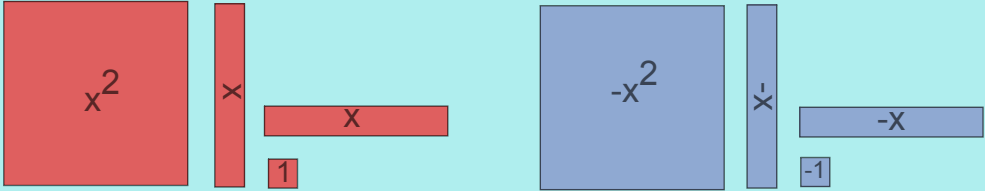


What does the area represent?  
What are the side lengths?

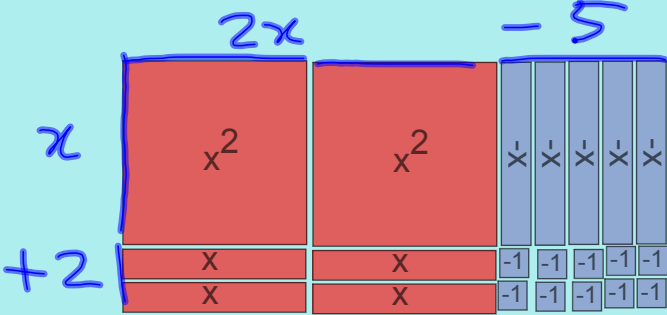


$x^2 + 4x + 3 = (x+3)(x+1)$

Mar 25-8:02 AM



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



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

Mar 25-8:02 AM

Multiplying Polynomials & Expanding Binomials

Oct 25/2011

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

$3x$  or  $7$  or  $5xy$  or  $a^2bc^3$

2. Binomial - an expression with two terms

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

What is a term? numbers and variables multiplied or divided

3. Trinomial - an expression with three terms

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

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

Mar 26-8:43 AM

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

$x \quad -1$

$x \quad x^2 \quad -x$

$-2 \quad -x \quad 1$

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Ex.1 Evaluate using an area model

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

$= x^2 - 3x + 2$

Oct 24-11:29 PM

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

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

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

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

$= 6x^2 + 21x - 10x - 35$   
 $= 6x^2 + 11x - 35$

Oct 24-11:29 PM

Ex.2 Evaluate using the distributive property

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

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

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

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

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

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

$$\begin{pmatrix} 2x \\ + \\ 3 \end{pmatrix} \begin{pmatrix} 5x + 2 \end{pmatrix}$$

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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)

3 ace...  
4 ace...  
5 ace...

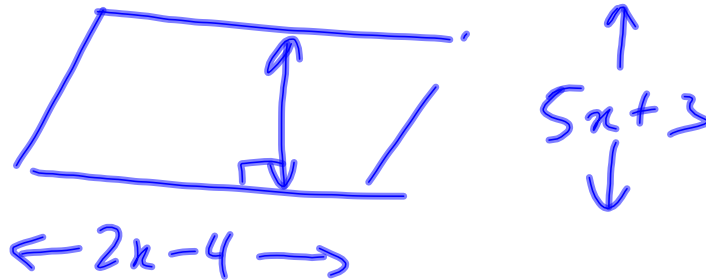
$$\frac{\text{circle}}{13k} + \frac{\text{circle}}{14A} + \frac{\frac{1}{2}\text{circle}}{10C} =$$

100%      100%      50%

$$13 + 14 + 5 = \overline{32}$$

Mar 26-9:06 AM

8(c)



$$\begin{aligned} A &= b \times h \\ &= (2x-4)(5x+3) \\ &= 10x^2 + 6x - 20x - 12 \\ &= 10x^2 - 14x - 12 \end{aligned}$$

$$\begin{array}{|c|c|} \hline & 2x-4 \\ \hline 5x & 10x^2 - 20x \\ \hline +3 & 6x - 12 \\ \hline \end{array}$$

FOIL

Oct 26-10:28 AM

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

Oct 26-10:32 AM

$$3(a) (m+3)(m+2) = \underline{m^2} + 2m + 3m + \underline{6}$$

$$\begin{array}{cc}
 & m+3 \\
 m & \begin{array}{|c|c|}
 \hline
 m^2 & 3m \\
 \hline
 \end{array} \\
 +2 & \begin{array}{|c|c|}
 \hline
 2m & 6 \\
 \hline
 \end{array}
 \end{array}$$

Oct 26-10:37 AM