Warm - up

Simplify.

a) $4x^2 - 3x + 9x^2 + 7x$

b) $3x + 2 - 5x + 15$

Factor.

(a) $2x + 8$

(b) $15m^2 - 5m$

$2m^2 + 2m - 112$

$5k^4 - 180k^2$

. Solve for x.

f) $-9x + 22 = -50$

h) $-9x = 6x + 30$

$5k^2(1k^2 - 36)$

$= 5k^2(k + 6)(k - 6)$

EXPANDING BINOMIALS

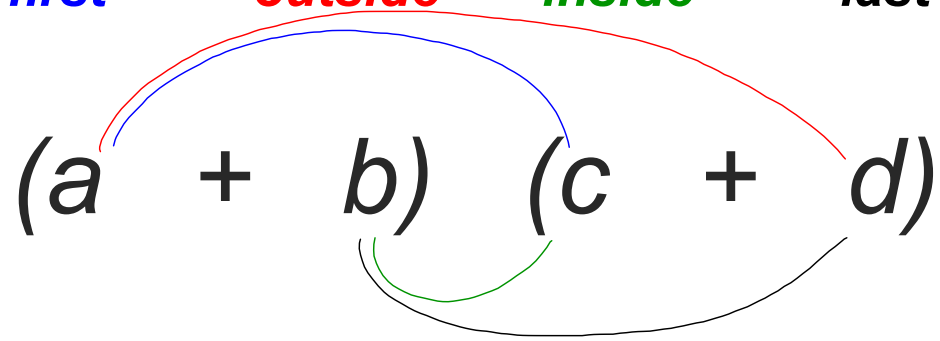
Learning Goals - multiply binomials
- find expressions for real life problems

Binomial: *has two terms (e.g. 5x + 7)*

Expand: *multiply*

Expand Binomials using FOIL: Rainbow

F	O	I	L
first	outside	inside	last



Expand *and* simplify.

FOIL (Rainbow)

$(x + 3)(x + 8)$

$= x^2 + 8x + 3x + 24$

$= x^2 + 11x + 24$

Box

	x	3
x	x^2	$3x$
8	$8x$	24

$= x^2 + 11x + 24$

$(2x + 1)(x - 4)$

$= 2x^2 - 8x + x - 4$

$= 2x^2 - 7x - 4$

	$2x$	1
x	$2x^2$	x
-4	$-8x$	-4

$(3x - 7)^2$

$= (3x - 7)(3x - 7)$

$= 9x^2 - 21x - 21x + 49$

$= 9x^2 - 42x + 49$

$3(2x + 1)^2 + 7$

Method 1

$= 3(2x + 1)(2x + 1) + 7$

$= (6x + 3)(2x + 1) + 7$

$= 12x^2 + 6x + 6x + 3 + 7$

$= 12x^2 + 12x + 10$

Method 2

$3(2x + 1)(2x + 1) + 7$

$= 3(4x^2 + 2x + 2x + 1) + 7$

$= 3(4x^2 + 4x + 1) + 7$

$= 12x^2 + 12x + 3 + 7$

$= 12x^2 + 12x + 10$

Find area and perimeter

Area: the space on the inside of the shape (tiles)

Perimeter: the distance around the shape on the outside (fence)

$A = lw$

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

$= 2x^2 - 6x + x - 3$

$= 2x^2 - 5x - 3$

$P = 2l + 2w$

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

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

$= 4x + 2 + 2x - 6$

$= 6x - 4$

Expand and Simplify

On the Boards...

(x+3)(x+4)

$= x^2 + 4x + 3x + 12$

$= x^2 + 7x + 12$

(x-2)(x-3)

$= x^2 - 3x - 2x + 6$

$= x^2 - 5x + 6$

$2(x+3)^2$

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

$= 2(x^2 + 6x + 9)$

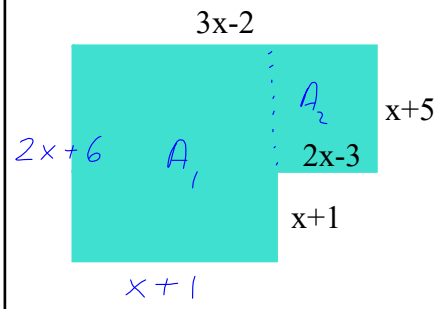
$= 2x^2 + 12x + 18$

(2x-4)(x+5)

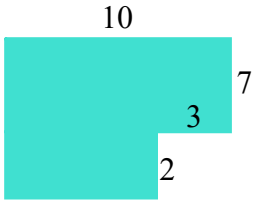
$= 2x^2 + 10x - 4x - 20$

$= 2x^2 + 6x - 20$

Find area and perimeter



What would you do if you had regular numbers?



$A_1 = (2x+6)(x+1)$
$= 2x^2 + 8x + 6$

$P = 10x + 8$

$A_2 = (2x-3)(x+5)$
$= 2x^2 + 7x - 15$

$A_{Total} = 4x^2 + 15x - 9$

Homework

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