

Section 3.5: Polynomials of form $x^2 + bx + c$

Part 1: Multiplying binomials

ex.1) $(x+2)(x+3)$

$$\begin{array}{l} \swarrow \quad \searrow \\ x(x+3) + 2(x+3) \\ x^2 + 3x + 2x + 6 \\ x^2 + 5x + 6 \end{array}$$

double
distributive

ex.2) $(x-5)(x+1)$

$$\begin{array}{l} \underbrace{x(x+1)} \quad \underbrace{-5(x+1)} \\ x^2 \quad \boxed{+x \quad -5x} \quad -5 \\ x^2 - 4x - 5 \end{array}$$

ex.3) $(x+6)(x-2)$

$$\begin{array}{l} x(x-2) + 6(x-2) \\ x^2 - 2x + 6x - 12 \\ x^2 + 4x - 12 \end{array}$$

Different Model \Rightarrow Area Model

ex.1) $(x+3)(x-10)$

	x	$+3$
x	x^2	$3x$
-10	$-10x$	-30

$$x^2 + (3x - 10x) - 30$$

$$x^2 - 7x - 30$$

2) $(x-4)(x-6)$

	x	-4
x	x^2	$-4x$
-6	$-6x$	24

$$x^2 - 10x + 24$$

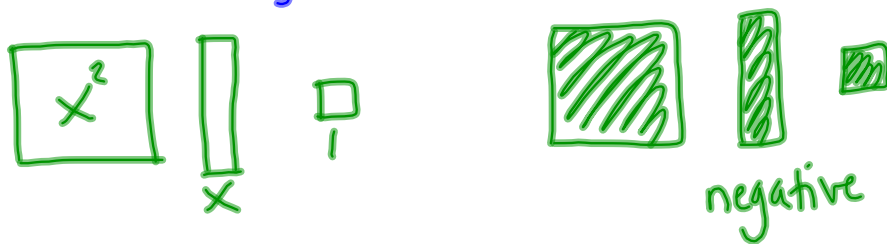
3) $(2x-1)(4x+3)$

	$2x$	-1
$4x$	$8x^2$	$-4x$
$+3$	$6x$	-3

$$8x^2 - \underline{4x + 6x} - 3$$

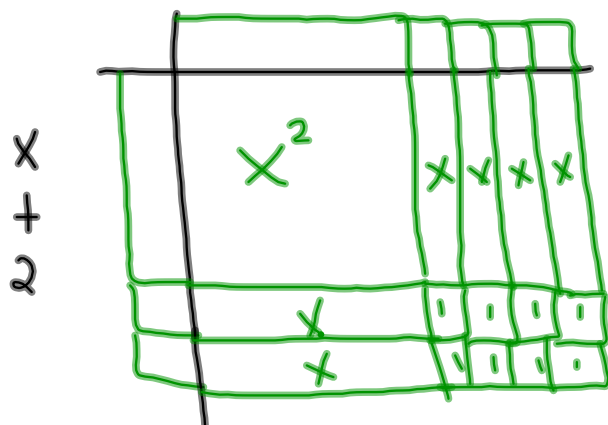
$$8x^2 + 2x - 3$$

Model 3 : Algebra Tiles



ex.1) $(x+4)(x+2)$

$x+4$



$x^2 + 6x + 8$

Worksheet

1. $x^2 - 6x - 16$

2. $x^2 - 11x + 28$

3. $x^2 + 9x + 18$

4. $28 - 3x - x^2$

5. $x^2 - 4x - 21$

6. $45 - 14x + x^2$

7. $x^2 - 4x - 5$

8. $x^2 - x - 42$

9. $6x^2 + 13x - 5$

10. $20x^2 + 2x - 6$

11. $10x^2 + 26x + 12$