Multiplying a Binomials (Special Cases):

- Special Case # 1 – (Binomial)^2 → Example: $(a+b)^2 \rightarrow (a+b)(a+b)$ $a^2+2ab+b^2$
  where middle term will DOUBLE!
- Special Case # 2 – Difference of Squares → Example: $(a+b)(a-b) \rightarrow a^2-ab+ab-b^2$ a^2-b^2
  where middle term will CANCEL OUT!
- Special Case # 3 – when multiplying a binomial to a trinomial → ADD more boxes to the square
  where follow same process as before but will have more diagonals with like terms.

Example 3: Multiply each binomial using the box method.

a.) $(4x-5)^2$

	4x	-5
4x	$16x^2$	-20x
-5	-20x	+25

$= 16x^2-40x+25$ (↑ Perfect SQUARES ↑)

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

	2x	+3
2x	$4x^2$	+6x
-3	-6x	-9

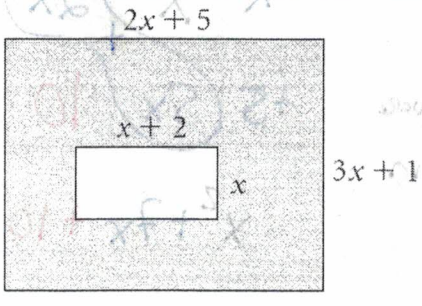
$= 4x^2-9$ (↑ Perfect Squares ↑)

c.) $(4x^2+x-6)(3x+4)$

	$4x^2$	+x	-6
3x	$12x^3$	$3x^2$	-18x
+4	$16x^2$	4x	-24

$= 12x^3+19x^2-14x-24$

d.) Find the area of the shaded region. Make sure your answer is completely simplified.



Remember to "formula" for a rectangle: A = Length • Width

To find the area of shaded region = $A_{B\square} - A_{S\square}$

Area of Outer Rectangle	Area of Inner Rectangle	Area of Shaded Region
$A=(2x+5)(3x+1)$	$A = x(x+2)$	$A = A_{B\square} - A_{S\square}$
2x +5 / 3x: $6x^2$, 15x / +1: 2x, +5	$A = x^2+2x$	$A = (6x^2+17x+5)-(x^2+2x)$
$A = 6x^2+17x+5$		$= 6x^2+17x+5-x^2-2x$
		$= 6x^2-x^2+17x-2x+5$
		$A = 5x^2+15x+5$ units squared