Using the DISTRIBUTIVE PROPERTY to Multiply Polynomials:

Example #1

$5x(2x + 1)$

$5x(2x) + 5x(1)$

$\boxed{10x^2 + 5x}$

Example #2

$-4a^5(-4a^3 + 2a^2 - 7a + 8)$

$-4a^5(-4a^3) - 4a^5(2a^2) - 4a^5(7a)$

$\qquad\qquad -4a^5(8)$

$\boxed{16a^8 - 8a^7 - 28a^6 - 32a^5}$

Using the "FOIL" Method to Multiply Polynomials:
(First / Outer / Inner / Last)

Example #3

$(x - 1)(x + 9)$

$x(x) + x(9) - 1(x) - 1(9)$

$x^2 + 9x - x - 9$

$x^2 + 8x - 9$

Continue Multiplying Monomials

4) $(x + 5)(x + 2)$

$x^2 + 2x + 5x + 10$

$\boxed{x^2 + 7x + 10}$

6) $x(x + 4)(3x - 7)$

$x(3x^2 - 7x + 12x - 28)$

$x(3x^2 + 5x - 28)$

$\boxed{3x^3 + 5x^2 - 28x}$

5) $(5x - 2y)(4x + 3y)$

$20x^2 + 15xy - 8xy - 6y^2$

$\boxed{20x^2 + 7xy - 6y^2}$

7) $(x^2y + 9y)(2x + 3y)$
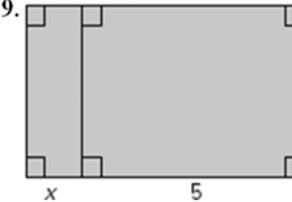
$2x^3y + 3x^2y^2 + 18xy$

$\qquad\qquad\qquad + 27y^2$

$\boxed{2x^3y + 3x^2y^2 + 18xy + 27y^2}$

Last Example...

Write a polynomial for the area of the shaded region.

19.

$A = l(w)$

$A = (x + 5)3x$

$A = 3x^2 + 15x$