Polynomial Operations

Adding, Subtracting, and Multiplying

Adding & Subtracting Polynomials

- a. $(5x^2 + x - 7) + (-6x + 3x^2 - 1)$

  $8x^2 - 5x - 8$

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

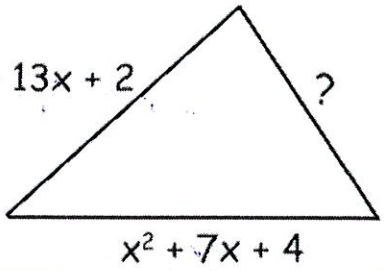
  $3x^2 - 2x + 4 - 4x + 6 - x^2$ $\quad 2x^2 - 6x + 10$

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

  $3x^2 - 2x - 4 - x - x^2 - 4x + 2 = 2x^2 - 7x - 2$

Try this application:

- Find the length of the missing side given that the perimeter is $11x^2 + 29x + 10$.



$6x^2 + 20x + 6$

$(11x^2 + 29x + 10) - (6x^2 + 20x + 6)$

453
-121

$11x^2 + 29x + 10 - 6x^2 - 20x - 6$

$5x^2 + 9x + 4$

Multiplying Polynomials

- a. $2x^2(3x^2 - x + 4)$

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

- b. $-5m(4m^2 + 2m - 3)$

$-20m^3 - 10m^2 + 15m$

Find each product FOIL

- c. $(2x + 1)(x + 3)$

$2x^2 + 6x + x + 3 = \boxed{2x^2 + 7x + 3}$

- d. $(3x - 1)(5x - 2)$

$15x^2 - 6x - 5x + 2$

$\boxed{15x^2 - 11x + 2}$

Find each product

- e. $(2m - 3)(3m^2 + 4m - 2)$

	$3m^2$	$4m$	-2
$2m$	$6m^3$	$8m^2$	$-4m$
-3	$-9m^2$	$-12m$	6

$\boxed{6m^3 - m^2 - 16m + 6}$

- f. $(a + 2)(a - 5)(2a + 4)$

$a^2 - 5a + 2a - 10$

$(a^2 - 3a - 10)(2a + 4)$

	a^2	$-3a$	-10
$2a$	$2a^3$	$-6a^2$	$-20a$
4	$4a^2$	$-12a$	-40

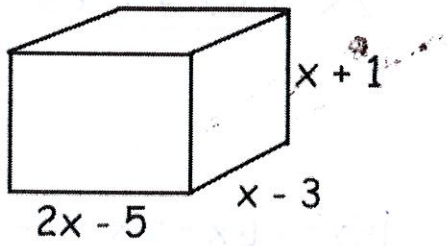
$\boxed{2a^3 - 2a^2 - 32a - 40}$

Try this application

- Find the volume of the rectangular prism.

$V = lwh$

$V = (2x-5)(x-3)(x+1)$



$V = 2x^3 - 9x^2 + 4x + 15$