

Add, Subtract, and Multiply Polynomials 73

Adding and Subtracting: Use distributive property to remove parentheses. Combine like terms.

$$7(x^2 - 3x + 2) - (x^2 + 5)$$

$$7x^2 - 21x + 14 - x^2 - 5$$

Multiplying: $6x^2 - 21x + 9$

Horizontal Method: $(x - 3)^3$

$$(x - 3)(x - 3)(x - 3)$$

FoIL

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

$$(x^2 - 6x + 9)(x - 3)$$

$$x^3 - 6x^2 + 9x - 3x^2 + 18x - 27$$

$$x^3 - 9x^2 + 27x - 27$$

Vertical Method: $3x^2 + 3x + 5$ and $2x + 3$ in vertical format.

$$\begin{array}{r} 3x^2 + 3x + 5 \\ \times 2x + 3 \\ \hline \end{array}$$

$$6x^3 + 6x^2 + 10x$$

$$9x^2 + 9x + 15$$

$$6x^3 + 15x^2 + 19x + 15$$

$$\begin{array}{r} 4x^2 - 7x + 3 \\ \times x - 4 \\ \hline \end{array}$$

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

$$-16x^2 + 28x - 12$$

$$4x^3 - 23x^2 + 31x - 12$$

From the Polynomial Puzzler worksheet...

1	$x + 7$	$x + 7$
$-2x + 5$	2	$-4x + 10$
$-2x + 5$	$2x + 14$	$-4x^2 - 18x + 70$