

# Add, Subtract, and Multiply Polynomials 67

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

$$\begin{aligned} & (x^3 + 2x - 1) - (x + 5) \\ & x^3 + 2x - 1 - x - 5 \\ & x^3 + x - 6 \end{aligned}$$

Multiplying:

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

$$\begin{aligned} & \underbrace{(x - 3)(x - 3)(x - 3)} \\ & x^2 - 3x - 3x + 9 \\ & (x^2 - 6x + 9)(x - 3) \\ & x^3 - 3x^2 - 6x^2 + 18x + 9x - 27 \\ & x^3 - 9x^2 + 27x - 27 \end{aligned}$$

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

$$\begin{array}{r} 3x^2 + 3x + 5 \\ \times 2x + 3 \\ \hline 6x^3 + 6x^2 + 10x \\ \phantom{6x^3 +} 9x^2 + 9x + 15 \\ \hline 6x^3 + 15x^2 + 19x + 15 \end{array}$$