

$$64. \quad 5(t^3 + 2t^2 - t - 8) - (3t^3 - t^2 - 4t + 2) + 4(2t^2 + 3t - 1) + (-t^3 + 1)$$

$$\underline{5t^3} + \underline{10t^2} - \underline{5t} + \underline{40} + \underline{-3t^3} + \underline{t^2} + \underline{4t} - \underline{2} + \underline{8t^2} + \underline{12t} - \underline{4} - \underline{t^3} - \underline{1}$$

$$\boxed{t^3 + 19t^2 + 11t - 47}$$

1.2 multiplying polynomials

Distributive Property

$$(2x-3)(x+4) \text{ FOIL}$$

$$2x^2 + \underbrace{8x - 3x} - 12$$

$$2x^2 + 5x - 12$$

$$(x-1)(x^3-4x+8)$$
$$x(x^3-4x+8) + -1(x^3-4x+8)$$
$$x^4 - 4x^2 + 8x - x^3 + 4x - 8$$

$$x^4 - x^3 - 4x^2 + 12x - 8$$

Special Products

$$(x-2)^3 = \underbrace{(x-2)(x-2)}(x-2)$$

$$\underbrace{(x^2 - 2x - 2x + 4)}(x-2)$$

$$(x^2 - 4x + 4)(x-2)$$

$$x(x^2 - 4x + 4) - 2(x^2 - 4x + 4)$$

$$\underbrace{x^3 - 4x^2 + 4x} - \underbrace{2x^2 + 8x - 8}$$

$$x^3 - 6x^2 + 12x - 8$$

Position Polynomial

$$-16t^2 + v_0 t + s_0$$

v_0 = initial velocity

s_0 = initial height

t = time

An object is thrown upward from the top of a 200 ft. building with an initial velocity of 40 ft/sec. Use the position polynomial to find the height of the object when $t=1$ and $t=2$,
 $t=3$

$$H = -16t^2 + 40t + 200$$

$$t=1 \rightarrow 224\text{ft}$$

$$t=2 \rightarrow 216\text{ft}$$

$$t=3 \rightarrow 176\text{ft}$$

p 25

106-142 even, 144,
147, 150, 168

