

(3)

$$f(x) = (8x^4 + 4x^2)^2 (5x + 6)^6$$

$$\square (=) \quad u = (8x^4 + 4x^2)^2 \Rightarrow u' = [2(8x^4 + 4x^2)(32x^3 + 8x)]$$

$$\square \quad v = (5x + 6)^6 \Rightarrow v' = [6(5x + 6)^5(5)]$$

$$\square (=) \quad f'(x) = u'v + uv'$$

$$\square = \{ [2(8x^4 + 4x^2)(32x^3 + 8x)] [(5x + 6)^6] \} +$$

$$\square \{ [(8x^4 + 4x^2)^2] [6(5x + 6)^5(5)] \}$$

$$\square (=) \quad u_1 = 2(8x^4 + 4x^2) \Rightarrow u_1' = 2(32x^3 + 8x)$$

$$\square \quad v_1 = 32x^3 + 8x \Rightarrow v_1' = 96x^2 + 8$$

$$\square \quad w = (5x + 6)^6 \Rightarrow w' = 6(5x + 6)^5(5)$$

$$\square \quad u_2 = (8x^4 + 4x^2)^2 \Rightarrow u_2' = [2(8x^4 + 4x^2)(32x^3 + 8x)]$$

$$\square \quad v_2 = 6(5x + 6)^5(5) \Rightarrow v_2' = [30(5x + 6)^4(5)]$$

$$\square (=) \quad f''(x) = (u_1'v_1 + v_1'u_1)w + (u_1v_1)w' + u_2'v_2 + v_2'u_2$$

$$\square = \{ [2(32x^3 + 8x)] [32x^3 + 8x] + [96x^2 + 8] [2(8x^4 + 4x^2)] \} [(5x + 6)^6] + \{ [2(8x^4 + 4x^2)] [32x^3 + 8x] [6(5x + 6)^5(5)] \} + \{ [2(8x^4 + 4x^2)(32x^3 + 8x)] [6(5x + 6)^5(5)] \} + \{ [30(5x + 6)^4(5)] [(8x^4 + 4x^2)^2] \}$$

(4)

$$f(x) = 2y - 6x^6 + 6$$

$$2y' - 36x^5 = 0$$

$$2y' = 36x^5$$

$$y' = \frac{36x^5}{2}$$

$$f''(x) = 180x^4 //$$