

$$5^{\circ}) A - F(x) = (3x^2 + 6x)^3$$

$$F(x) = \frac{d}{dx} ((3x^2 + 6x)^3)$$

$$F(x) = \frac{d}{dx} (g^3) \cdot \frac{d}{dx} (3x^2 + 6x)$$

$$F(x) = 3g^2 \cdot \frac{d}{dx} (3x^2 + 6x)$$

$$F(x) 3g^2 \cdot (3 \cdot 2x + 6)$$

$$F(x) = 3 (3x^2 + 6x)^2 \cdot (3 \cdot 2x + 6)$$

$$F(x) = 162x^5 + 810x^4 + 1536x^3 + 648x^2$$

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B) $f(x) = 3 \sin x + 2 \cos y$

$$f(x) = \frac{d}{dx} (3 \sin x + 2 \cos y)$$

$$f'(x) = \frac{d}{dx} (3 \sin x) + \frac{d}{dx} (2 \cos x)$$

$$f'(x) = 3 \cos x + \frac{d}{dx} (2 \cos x)$$

$$f'(x) = 3 \cos x + 2 \cdot (-\sin x)$$

$$f'(x) = 3 \cos x - 2 \sin x$$

$$e) F(x) = 2x^3 \cdot 2x - 7x^2 \cdot \cos x$$

$$F'(x) = \frac{d}{dx} (2x^3 \cdot 2x - 7x^2 \cdot \cos x)$$

$$F'(x) = \frac{d}{dx} (2x^3 \cdot 2x) + \frac{d}{dx} (-7x^2 \cdot \cos x)$$

$$F'(x) = 2 \cdot 3x^2 \cdot 2x + 2x^3 \cdot 2 + \frac{d}{dx} (-7x^2 \cdot \cos x)$$

$$F'(x) = 2 \cdot 3x^2 \cdot 2x + 2x^3 \cdot 2 - 7 \cdot 2x \cdot \cos x - 7x^2 \cdot \sin x$$

$$F'(x) = 6x^3 \cdot 2x + 2x^3 \cdot 2 - 14x \cdot \cos x + 7x^2 \cdot \sin x$$

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d) $F(x) = \frac{x^2 + 3x}{e^x}$

$$F(x) = \frac{d}{dx} \left(\frac{x^2 + 3x}{e^x} \right)$$

$$F(x) = \frac{d}{dx} \left(\frac{(x^2 + 3x) \cdot e^x - (x^2 + 3x) \cdot d}{dx} (e^x)}{(e^x)^2} \right)$$

$$F(x) = \frac{(2x+3)e^x - (x^2 + 3x)e^x}{(e^x)^2}$$

$$F(x) = (2x+3)e^x - (x^2 + 3x) \cdot \frac{d}{dx} (e^x)$$

$$F(x) = \frac{(2x+3)e^x - (x^2 + 3x)e^x}{(e^x)^2}$$

$$F'(x) = \frac{-x^2 - x + 9}{e^x}$$