

$$1) \frac{d}{dx}(5) = 0.$$

$$2) \frac{d}{dx}(3x^4) = 12x^3.$$

$$3) \frac{d}{dx}(t^3 + 5t^2 - 4) = 3t^2 + 10t.$$

$$4) \frac{d}{dx}(2x^4 - 3x + 7) = 8x^3 - 3.$$

$$5) \frac{d}{dx}(\sin(2x)) = 2 \cos(2x)$$

$$6) \frac{d}{dx}(\tan(x^3)) = 3x^2 \sec^2(x^3)$$

$$1) \frac{d}{dx}(x^2 \cdot \sin(x)) = 2x \sin(x) + x^2 \cos(x)$$

$$2) \frac{d}{dx}((x^3 + 2)(x - 1)) = 3x^2(x - 1) + (x^3 + 2)$$

$$3x^3 - 3x^2 + x^3 + 2 = 4x^3 - 3x^2 + 2.$$

$$3) \frac{d}{dx}\left(\frac{x^2}{\sin(x)}\right) = \frac{2x \sin(x) - x^2 \cos(x)}{(\sin(x))^2}.$$

~~$$4) \frac{d}{dx}\left(\frac{3x+1}{x^2+1}\right) = 3x^2 - 3 - 2(3x+1)(x^2+1)$$~~

$$4) \frac{d}{dx} \left(\frac{3x+1}{x^2-1} \right) = \frac{3x^2-3 - 6x^2+2x}{x^4-1} =$$

$$= \frac{-3x^2+2x-3}{x^4-1}.$$

$$5) \frac{d}{dx} ((2x+3)^5) = 5(2x+3)^4 \cdot 2x = 10x(2x+3)^4.$$

$$6) \frac{d}{dx} (\sin(3x^2)) = \cos(3x^2) \cdot 6x = 6x \cos(3x^2)$$

$$1) \frac{d}{dx} (e^{x^2}) = 2x e^{x^2}.$$

$$2) \frac{d}{dx} (3^{2x}) = 2 \cdot \ln(3) \cdot 3^{2x}$$

$$3) \frac{d}{dx} (\cancel{x^3 \cdot \sin(x)} - \ln \cdot \ln(x^2)) = \frac{2x}{x^2} = \frac{2}{x}$$

$$4) \frac{d}{dx} (\log_2(x^3)) = \frac{3x^2}{x^2 \ln 2} = \frac{3}{x \ln 2}.$$

$$5) \frac{d}{dx} \left(x^3 \cdot \sin(x) - \frac{\ln(x)}{x^2} \right) =$$



$$\textcircled{1} \cdot 3x^2 \sin(x) + \cdot x^3 \cos(x)$$

$$\textcircled{2} \cdot \frac{1}{x} \cdot x^2 - \cdot 2x \cdot \ln(x) = \frac{x(1 - 2 \ln(x))}{x^3}$$

$$\cdot 3x^2 \sin(x) + x^3 \cdot \cos(x) - \frac{1 - 2 \ln(x)}{x^3}$$

$$5) \frac{d}{dx} ((x^2 + 3)(e^x - \tan(x))) =$$

$$\textcircled{1} \quad 2x$$

$$\textcircled{2} \quad e^x - \sec^2(x)$$

$$\textcircled{3} \quad \cancel{2x \cdot (e^x - \sec^2(x))} = \cancel{2e^x - 2\sec^2(x)} + e^x$$

$$\underline{2x(e^x - \tan(x)) + (x^2 + 3) \cdot e^x - \sec^2(x)}$$