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

$$y = \frac{d}{dx} \left(\frac{1}{x^3} \right) + \frac{d}{dx} (\sin^3 x)$$

$$y = -\frac{3}{x^4} + \cos(3x) \times 3$$

$$y = -\frac{3}{x^4} + 3\cos(3x)$$

d)

$$y = x^4 \tan 2x$$

$$y = \frac{d}{dx} (x^4 \times \tan(2x))$$

$$y = \frac{d}{dx} (x^4) \times \tan 2x + x^4 \times \frac{d}{dx} (\tan 2x)$$

$$y = 4x^3 \times \tan 2x$$

e)

$$y = (5x^2 + 2x + 1)^5$$

$$y = \frac{d}{dx} ((5x^2 + 2x + 1)^5)$$

$$y = \frac{d}{dg} (g^5) \times \frac{d}{dx} (5x^2 + 2x + 1)$$

$$y = 5g^4 \times (5x + 2)$$

$$\frac{d}{dx} (f(g)) = \frac{d}{dg} (f(g)) \times \frac{d}{dx} (g)$$

$$g = 5x^2 + 2x + 1$$

$$y = 5(5x^2 + 2x + 1)^4 \times (5x + 2)$$

$$y = 5(5x^2 + 2x + 1)^4 \times (10x + 2)$$

$$y = (50x + 10) \times (5x^2 + 2x + 1)^4$$