

$$1. \quad 4x^3 - y = 7x + 3$$

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

$$4x^3 - 7x - 3 = y$$

$$12x^2 - 1 \cdot y' = 7 + 0$$

$$y' = 4 \cdot 3x^2 - 7$$

$$12x^2 - y' = 7$$

$$= 12x^2 - 7$$

$$12x^2 - 7 = y'$$

$$2. \quad -7x^2 y - \frac{5}{y^2} = 2$$

$$\frac{d}{dx}[-7x^2 y] + \frac{d}{dx}\left[-\frac{5}{y^2}\right] = \frac{d}{dx}[2]$$

$$-7 \frac{d}{dx}\left[\underbrace{x^2}_P \underbrace{y}_Q\right] - 5 \frac{d}{dx}\left[\frac{1}{y^2}\right] = 0$$

$$P' = 2x \quad Q' = 1 \cdot y'$$

$$P'Q + PQ'$$

$$-7[2xy + x^2 y'] - 5 \frac{d}{dx}[y^{-2}] = 0$$

$$-14xy - 7x^2 y' - 5(-2)y^{-3} \cdot y' = 0$$

$$-14xy - 7x^2 y' + 10y^{-3} y' = 0$$

$$-14xy - 7x^2 y' + \frac{10y'}{y^3} = 0$$

$$y^3(-14xy) + y^3(-7x^2 y') + y^3\left(\frac{10y'}{y^3}\right) = y^3(0)$$

$$\underline{-14xy^4 - 7x^2 y^3 y' + 10y'} = 0$$

$$-7x^2 y^3 y' + 10y' = 14xy^4$$

$$y'(-7x^2 y^3 + 10) = 14xy^4$$

$$\frac{y'(-\cancel{7x^2 y^3} + 10)}{-\cancel{7x^2 y^3} + 10} = \frac{14xy^4}{-\cancel{7x^2 y^3} + 10}$$

$$y' = \frac{14xy^4}{-7x^2 y^3 + 10}$$