

Answer on Question #48612 – Math – Calculus

Dear expert, please provide an answer to the question below within 12 hours.

find dy/dx when $xy^3 - x^3y = x$

Solution.

$$xy^3 - x^3y = x \rightarrow \frac{d}{dx}(xy^3 - x^3y) = \frac{d}{dx}(x) \rightarrow$$

$$\rightarrow y^3 + 3xy^2y' - 3x^2y - x^3y' = 1 \rightarrow$$

$$\rightarrow \frac{dy}{dx} = y' = \frac{y^3 - 3x^2y - 1}{x(3y^2 - x^2)}.$$