$$\begin{cases} x = t + 2t^2 + t^3 \\ y = -2 + 3t - t^3 \\ -1 < t < +\infty \end{cases} \qquad \begin{cases} \frac{dx}{dt} = 1 + 4t + 3t^2 \\ \frac{dy}{dt} = -3t^2 + 3 \end{cases} \qquad x'_y = \frac{dx}{dy}$$

$$\frac{dx}{dy} = \frac{dx}{dt} \cdot \frac{dt}{dy} = (1 + 4t + 3t^2) \cdot (-3t^2 + 3)^{-1} =$$

$$= \frac{3t^2 + 4t + 1}{-3(t^2 - 1)} = \frac{3(t+1)(t+\frac{1}{3})}{-3(t+1)(t-1)} \underset{t \neq -1}{=} \frac{3t + 1}{3 - 3t} = \frac{3t+1}{3-3t}$$

Answer: $\frac{dx}{dy} = \frac{3t+1}{3-3t}$

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