(3) $y = \int_{\sin x}^{5} \frac{1}{u^3}\,du = -\int_{5}^{\sin x} \frac{1}{u^3}\,du$

$= \int_{5}^{\sin x} -\frac{1}{u^3}\,du$

LET $w = \sin x$ SO $y = \int_{5}^{w} -\frac{1}{u^3}\,du$

$\frac{dy}{dw} = -\frac{1}{w^3}$ $\quad \frac{dy}{dx} = \frac{dy}{dw}\cdot\frac{dw}{dx}$

$\frac{dy}{dx} = -\frac{1}{w^3}\cdot\cos x = \boxed{\frac{-\cos x}{\sin^3 x}}$

(7.) NET CHANGE $N(6) - N(1) = \int_{1}^{6} 2e^{-5t}\,dt$

$= -\frac{2}{5}e^{-5t}\Big|_1^6 = -\frac{2}{5}\left(e^{-5(6)} - e^{-5(1)}\right)$

$= \boxed{\frac{2}{5}\left(e^{-30} - e^{-5}\right)} = \frac{2}{5}\left(e^{-5} - e^{-30}\right)$