

$$\boxed{28} \quad y = \frac{x}{1+e^{2x}}$$

$$\rightarrow y' = \frac{(1+e^{2x})(1) - x(2e^{2x})}{(1+e^{2x})^2}$$

$$= \frac{1+e^{2x} - 2xe^{2x}}{(1+e^{2x})^2}$$

~~34) y = 5^{2x-1}~~

$$\boxed{34} \quad y = 5^{2x-1}$$

$$\rightarrow y' = 2 \cdot 5^{2x-1} \cdot \ln 5$$

$$= 2 \ln 5 \cdot 5^{2x-1}$$

$$= \ln 5^2 \cdot 5^{2x-1}$$

$$= (\ln 25) \cdot 5^{2x-1}$$

$\boxed{36} \text{ a)}$ What is the slope of the line tangent to ~~the graph of~~ $y = \frac{e^{-x}}{1+e^{-x}}$ at $x=0$.

$$\rightarrow \text{slope} = \frac{dy}{dx} = \frac{(1+e^{-x})(-e^{-x}) - e^{-x}(-e^{-x})}{(1+e^{-x})^2}$$

$$= \frac{(1+e^0)(-e^0) - e^0(-e^0)}{(1+e^0)^2} = \frac{(1+1)(-1) - 1(-1)}{(1+1)^2}$$

$$= \frac{-2+1}{1+1} = \frac{-1}{2}$$

$$= \frac{-1}{2}$$