(10.) $f(x) = e^{2x} + 3$

$f'(x) = e^{2x} \cdot 2$

$3 = e^{2x} \cdot 2$

$\frac{3}{2} = e^{2x}$

$\ln \frac{3}{2} = \ln e^{2x}$

$\ln \frac{3}{2} = 2x$

$\frac{\ln \frac{3}{2}}{2} = x$

$f\left(\frac{\ln \frac{3}{2}}{2}\right) = e^{2\left(\frac{\ln \frac{3}{2}}{2}\right)} + 3$

$= \frac{3}{2} + 3$

$= \frac{9}{2}$

$\left(\frac{\ln \frac{3}{2}}{2}, \frac{9}{2}\right)$

(11.) $8 - xy = -e^{xy}$

$-x\frac{dy}{dx} + y \cdot (-1) = -1\left(e^{xy} \cdot \left(x\frac{dy}{dx} + y\right)\right)$

$-x\frac{dy}{dx} - y = -e^{xy}x\frac{dy}{dx} - ye^{xy}$

$-x\frac{dy}{dx} + e^{xy}x\frac{dy}{dx} = y - ye^{xy}$

$\frac{dy}{dx} = \frac{y - ye^{xy}}{-x + xe^{xy}}$

(12.) $f(x) = 4^{2x}$

$f'(x) = \ln 4 \left(4^{2x}\right)(2)$

$= 2\ln 4 \cdot 4^{2x}$

$= \ln 16 \cdot (4^2)^x$

$f'(x) = 16^x \ln 16$

(13.) $f(x) = 4^x$

$f'(x) = \ln 4 \cdot 4^x$

$2 = \ln 4 \cdot 4^x$

$\frac{2}{\ln 4} = 4^x$

$\ln\left(\frac{2}{\ln 4}\right) = x \ln 4$

$\frac{1}{\ln 4} \ln\left(\frac{2}{\ln 4}\right) = x$ $\quad x = .204$