1. *If* $y = x \sin^{-1} x + x \cos^{-1} x$ *, then* $x \dfrac{dy}{dx} =$

2. *The point* (x, y) *on the curve* $y = [\ln(2x + 5)]^2$ *with horizontal tangent is:*

3. If $f(x) = (1 + 2x)^{(1+3x)}$ then $f'(1) =$

4. Find $\frac{dy}{dx}$ by implicit differentiation:

$$e^y \cos(x) = 1 + \sin(xy)$$