In class work 3

1. Find the equation for the line tangent to the ellipse $x^2 + xy + y^2 = 3$ at $(1,1)$

2. Given that $\frac{d}{dx}\left[\sin^{-1}(x)\right] = \frac{1}{\sqrt{1-x^2}}$, use the chain rule to find $\frac{d}{dx}\left[\sin^{-1}(e^x)\right]$

3. Find $\frac{d}{dx}\left[\sin^{-1}(\cos(x))\right]$}

4. Let $f(x) = 2x + \cos(x)$
   a) Find $f(0)$
   b) Find $f^{-1}(1)$
   c) Use the fact that $(f^{-1})'(x) = \frac{1}{f'(f^{-1}(x))}$ to find $(f^{-1})'(1)$