1. **Prove** that $\frac{d}{dx}(\cos x) = -\sin x$
   (Use facts stated in class and try to imitate the proof that $\frac{d}{dx}(\sin x) = \cos x$)

2. What is the derivative of $f^{-1}(x)$? **Hint:** Write down the **definition** of $f^{-1}$, then differentiate using the chain rule. Your answer should look like:

   $$(f^{-1})'(x) = \text{something in terms of } f, f', f^{-1}$$