**Name:** _____ **Quiz 4**

**MAT 295** **Fall 2016**

**Problem 1:** Determine the derivative of the following:

(a) $\frac{d}{dx}\arctan x =$

(b) $\frac{d}{dx}\left(\frac{1}{\sqrt[7]{x^3}}\right) =$

(c) $\frac{d}{dx}\tan x =$

(d) $\frac{d}{dx}\frac{1}{5^x} =$

(e) $\frac{d}{dx}\sec x =$

(f) $\frac{d}{dx}\log_7 x =$

(g) $\frac{d}{dx}e^x =$

(h) $\frac{d}{dx}\cot x =$

(i) $\frac{d}{dx}\ln x =$

(j) $\frac{d}{dx}(2x^3 - x^2 + 4x - 7) =$

(k) $\frac{d}{dx}\cos^{-1} x =$

**Problem 2:** Use a tangent line to $f(x) = \sqrt{x}$ to approximate $\sqrt{26}$. Check how "close" your answer is to the actual value by computing its square. Determine whether your answer is an overestimation or an underestimation two ways: first by using the square of your approximation and second by graphing $f(x)$ and its tangent line.