Problem statement a) Suppose $f(x) = 3^x$. Plot $y = f(x)$ in the square window defined by $-1 \leq x \leq 1$ and $0 \leq y \leq 2$. Also plot the secant lines connecting $(0, f(0))$ and $(0 + h, f(0 + h))$ for $h = .5$ and $h = .25$ in the same window. Give a table of values of the slope of the secant lines connecting $(0, f(0))$ and $(10^{-j}, f(10^{-j}))$ when j is a positive integer ranging from 1 to 5. What is an equation of the line tangent to $y = 3^x$ at $(0, 1)$?

b) Suppose $g(x) = 6x \arctan\left(\dfrac{\ln x}{x^3 + 2}\right)$. Plot $y = g(x)$ in the square window defined by $0 \leq x \leq 2$ and $-1 \leq y \leq 1$. Also plot the secant lines connecting $(1, g(1))$ and $(1 + h, g(1 + h))$ for $h = .5$ and $h = .25$ in the same window. Give a table of values of the slope of the secant lines connecting $(1, g(1))$ and $(1 + 10^{-j}, g(1 + 10^{-j}))$ when j is a positive integer ranging from 1 to 5. What is an equation of the line tangent to $y = 6x \arctan\left(\dfrac{\ln x}{x^3 + 2}\right)$ at $(1, 0)$?