1. (5 pts) Find $g(1)$ if g is given by

$$g(x) = \frac{d}{dx}\left(\int_{2x}^{x^{\frac{1}{3}}} \frac{1}{1+t} dt\right), \ x > 0$$

2. (5 pts) Find the value of $F''(0)$ when

$$F(x) = \int_5^x e^{\cos t} \sin t dt$$

Hint: $\frac{d}{dx} \sin x = \cos x$, $\frac{d}{dx} \cos x = -\sin x$.

Please fold the paper and write your NAME and UT EID clearly on the back.