For practice only. Not to be submitted.

1. Differentiate each of the following.

   (a) $y = \sinh(x^3)$

   (b) $y = \sinh^3(x)$

   (c) $f(x) = \dfrac{\cosh(x)}{\cos(x)}$

   (d) $y = x^{\cosh(x)}$

2. Prove that $\dfrac{d}{dx}[\sinh(x)] = \cosh(x)$.

3. Prove that $\sinh(x + y) = \sinh(x)\cosh(y) + \cosh(x)\sinh(y)$.