1. The cost of building wooden pencils is given by a function $C(n)$ where C is the cost in dollars and n is the number of pencils, measured in thousands. Explain what $C'(50) = 37.5$ means in language your parents could understand.

Compute the derivatives of the following functions.

2. $f(x) = \sqrt{1 + x^2}$

3. $f(\theta) = \tan(4\theta + 9)$

4. $f(t) = e^{t^2}(1 + \cos(t))$

5. $f(v) = \sec\left(\frac{1}{1+v^2}\right)$

6. $f(x) = \cos(x^{1/3}e^x)$

7. $f(x) = \sqrt{x + e^{x^2}}$