1. The volume of a snowball of radius r is $V(r) = (4/3)\pi r^3$, where r is measured in inches and V is in measured in inches cubed. Explain what $V'(2) \approx 50.265$ means in language your parents could understand.

2. Compute $\dfrac{d}{dx}\cot(x)$

3. Compute $\dfrac{d}{dx}\sec(x)$

4. Compute the second derivative $\frac{d^2}{dx^2} e^x \cos(x)$

5. Find the equation of the tangent line of the graph of $y = \sin(x)$ at $x = \pi/3$.

6. A 12 foot ladder rests against a wall. Let θ be the angle between the ladder and the wall and let x be the distance from the base of the ladder and the wall.

a. Compute x as a function of θ.

b. How fast does x change with respect to θ when $\theta = \pi/6$? Include units in your answer.