1. Compute the derivative of $f(x) = \frac{2x+1}{x+3}$ using the definition of derivative.

2. Find an equation of the tangent line to the graph of $f(x) = \sqrt{x}$ at $(1,1)$.

3. If a ball is thrown into the air with a velocity of 40 m/s, its height (in meters) after t seconds is given by $y = 40t - 5t^2$. Find the velocity if the ball after 2 seconds. Is it going upward or downward at that time?

4. $f(x) = \sqrt[3]{x}$. Show that $f'(0)$ does not exist. [Hint: $(a-b)(a^2+ab+b^2) = a^3-b^3$]

5. On which intervals is $f(x) = |x-6|$ differentiable?

6. $f(x) = 3x^2$. Compute f', f'', f''' using definition of derivative.

7. Prove the derivative of an even function is an odd function.