Newton's Method Preparation

Part I: Given the attached graph of a function y = f(x).

- 1. Indicate the point that is the root of the equation. Label it *r*.
- 2. Start at the x-value labeled x_{0} , and draw a vertical line to the graph. Mark the point on the graph (x_0 , $f(x_0)$).
- 3. Draw the tangent line to the function at the point $(x_0, f(x_0))$
- 4. Indicate the point where the tangent line intersects the x-axis. Label this point x_1
- 5. Repeat steps 2-4, starting with x_1 , and labeling the new point x_2 . Continue this several times for x_3 , x_4 , etc.
- 6. What can you say about the points x_1 , x_2 , x_3 , etc and their relationship to the root r.

