Read directions carefully and show all your work. Partial credit will be assigned based upon the correctness, completeness, and clarity of your answers.

1. (5 pts) At one moment, one bicyclist is 4 miles east of an intersection traveling west toward the intersection at the rate of 9 miles/hour. At the same time a second bicyclist is 3 miles south of the intersection traveling south away from the intersection at a rate of 10 miles/hour. Is the distance between the cyclists increasing or decreasing at that moment? At what rate?

2. (5 pts) Consider \( f(x) = \sqrt{x} \). You are not allowed to use a calculator for this problem.

(a) What does the Extreme Value Theorem say about \( f \) on the interval \([0, 1]\)?

(b) Does the Intermediate Value Theorem hold for \( f \) on \([0, 4]\) and \( y = 3 \)? Explain your answer.