

Math 124

Name _____

Quiz 6

TA _____

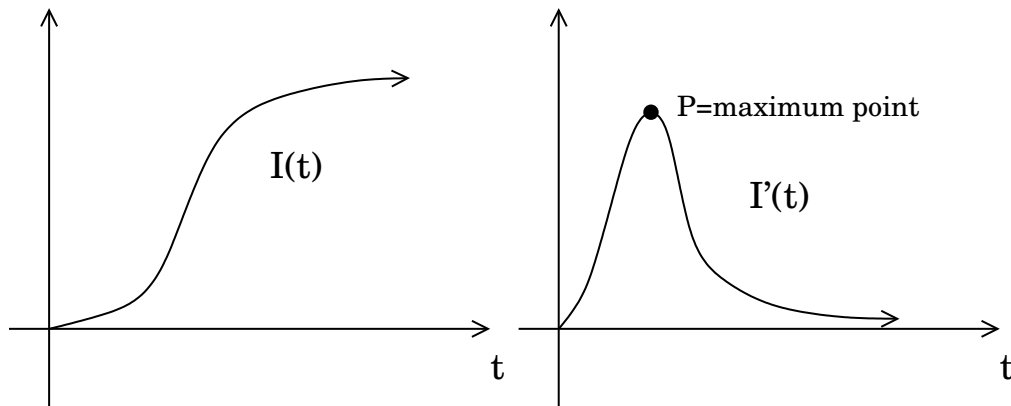
Instructions: You may use a notecard for this quiz. You must show your work.

Box your final answers.

1. A colony of bacteria is being infected by a virus. The number of infected cells after t minutes is given by the function

$$y = I(t) = \frac{At^2}{10^4 + t^2},$$

where A is a positive constant. The graphs of $I(t)$ and $I'(t)$ are pictured below.



- (a) (6 pts) Calculate $I'(t)$.

(b) (3 pts) What is the rate of infection at $t = 100$ minutes? (Include units!)

(c) (6 pts) Calculate $I''(t)$.

(d) (5 pts) When will the rate of infection be a maximum? (Hint: calculate the t -coordinate of P using (c).)