Mathematics 172

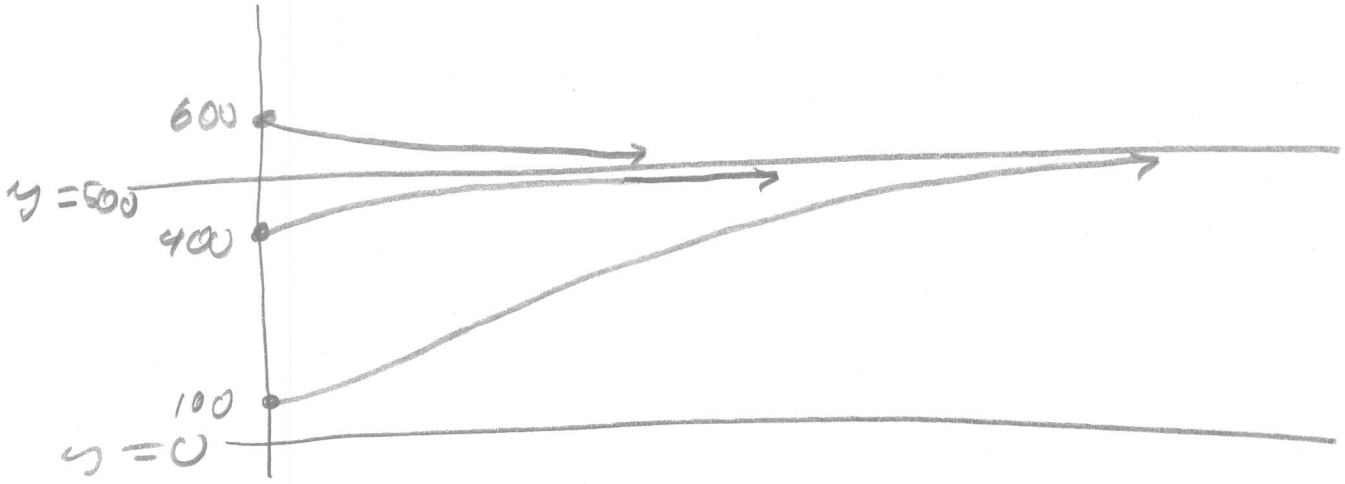
Quiz #7

You must show your work to get full credit.

Consider the rate equation (i.e. differential equation)

$$y'(t) = .05y(t)\left(1 - \frac{y(t)}{500}\right)$$

(1) Sketch the graphs of the three solutions with $y(0) = 100$, $y(0) = 400$, and $y(0) = 600$ showing any horizontal asymptotes.



(2) If $y(0) = 600$ estimate $y(1{,}000)$.

Because $y = 500$ is a horizontal asymptote, $y(1{,}000) \approx 500$