

Mathematics 122

Quiz #36

Name: Rey

You must show your work to get full credit.

(1) Find the solution to

2 PTS

$$P'(t) = .36P(t)$$

with $P(0) = 357$.

$$P(t) = \underline{357e^{.36t}}$$

(2) Let

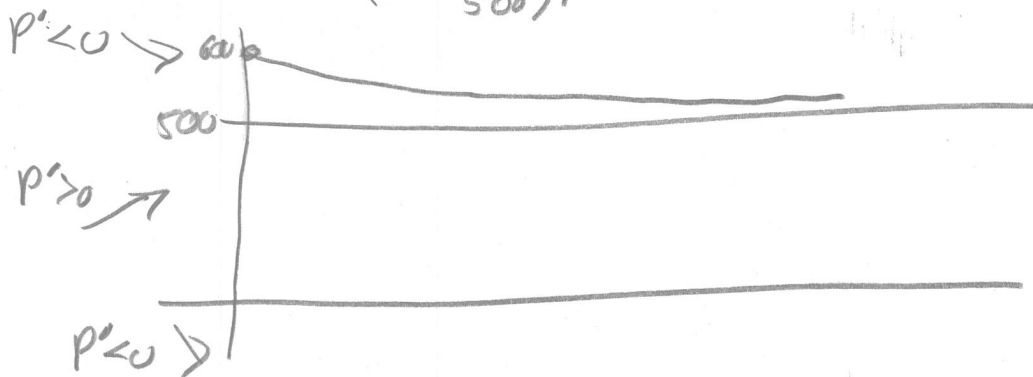
$$P' = .03 \left(1 - \frac{P}{500} \right) P$$

with $P(0) = 600$.

2 PTS

(a) Graph $y = P(t)$ showing the horizontal asymptote.

$$P' = .03 \left(1 - \frac{P}{500} \right) P = 0 \text{ when } P = 0, P = 500$$



1 PT

(b) Estimate $P(5,000)$

$$P(5,000) \approx \underline{500}$$

As $P(t)$ is approaching the asymptote, when $t = 5,000$ it will be very very close to $P = 500$