Mathematics 122

Quiz 23 Name: Key

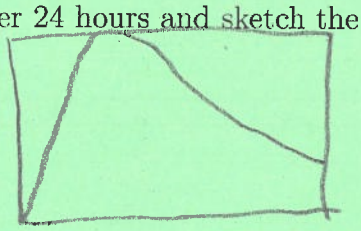
You must show your work to get full credit.

1. The concentration in ng/ml of a drug t hours after it is administered is

$$C(t) = 21.5te^{-0.18t}$$

(a) Plot $C(t)$ as a function of t over 24 hours and sketch the graph here.

$Y_1 = 21.5 X e^{-.18X}$
$X_{min} = 0$
$X_{max} = 24$



(b) When is the drug at its maximum concentration and what is the maximum concentration. Say what you did on the calculator.

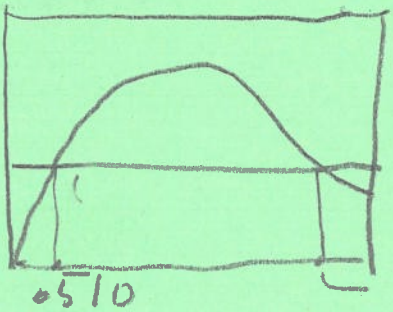
Maximizer 5.555 hours Maximum 43.44 ng/ml

2nd calc
4: maximum

(c) The drug is only effective when its concentration is at least 10 ng/ml. What is the time period when the drug is effective?

$Y_2 = 10$

The interval is $.510 \leq t \leq 26.727$



2nd calc 5: intersect