Mathematics 172

Quiz #8 Name: _____

You must show your work to get full credit.

1. For the rate equation

$$\frac{dy}{dt} = -.3y(y-5)(y-15).$$

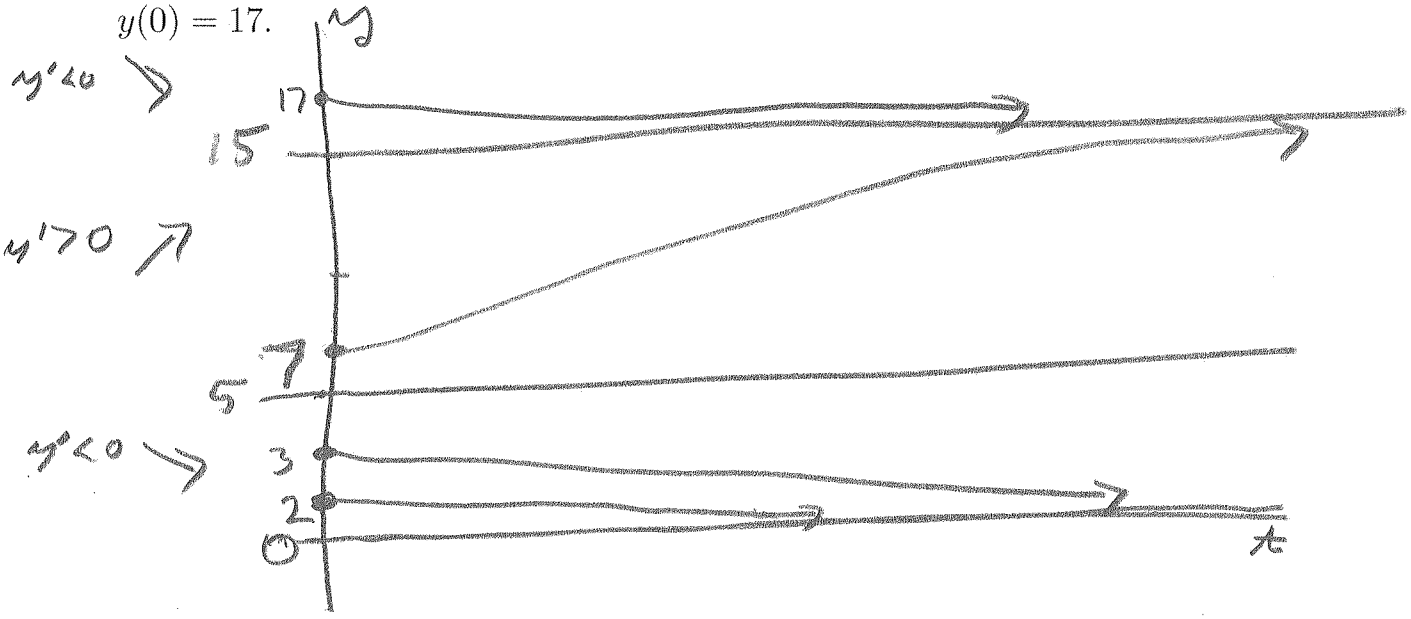
(a) Find the equilibrium solutions. (That is the constant solutions.)

Equilibrium solutions are: $y = 0, 5, 15$

Solve $-.3y(y-5)(y-15) = 0$

$y = 0, 5, 15$

(b) Sketch graphs of the solutions with $y(0) = 2$, $y(0) = 3$, $y(0) = 7$ and $y(0) = 17$.



(c) For the solution with $y(0) = 3$ estimate $y(1{,}000)$

$y(1{,}000) \approx$ 0

(d) For the solution with $y(0) = 7$ estimate $y(1{,}000)$

$y(1{,}000) \approx$ 15