Quiz 28

For the predator prey equations

$$\frac{dV}{dt} = .2V - .05PV$$

$$\frac{dP}{dt} = -.1P + .01PV$$

a) What is the instrinsic growth rate of the victims?

This is the coefficient of V in the first equation. I.e.

$$r = .2$$

b, c) what are the average number of victims and predators.

Set $\frac{dV}{dt} = 0$, $\frac{dP}{dt} = 0$ and solve for $V, P \neq 0$

$\frac{dV}{dt} = V(.2 - .05P) = 0$ implies $P = \frac{.2}{.05} = 4$

$\frac{dP}{dt} = P(-.1 + .01V) = 0$ implies $V = \frac{.1}{.01} = 10$

So Avenge number of victims = 10

Avenge number of predators = 4