

Quiz #6

Directions: Carefully read each question below and answer to the best of your ability in the space provided. Your answer to problems should be written in a clear and concise manner. You **MUST** show your work to receive full credit!

1. (10 points) Find the equilibrium point(s) of

$$\frac{dy}{dx} = -5 + y$$

and state if they are stable or not.

Solution: First, let $g(y) = -5 + y$, then since we want to find equilibrium set $g(y) = 0$, thus $-5 + y = 0$. So equilibrium point is $\hat{y} = 5$.

Now, we want to determine if this equilibrium point is stable or unstable. Note that $g'(y) = 1$ and

$$g'(5) = 1 > 0,$$

hence $\hat{y} = 5$ is unstable equilibrium point.

Name: _____

Section (circle one): 001 002

Question:	1	Total
Points:	10	10
Score:		