

For this question, you will use the differential equation

$$\frac{dy}{dt} = y^2(25 - y^2).$$

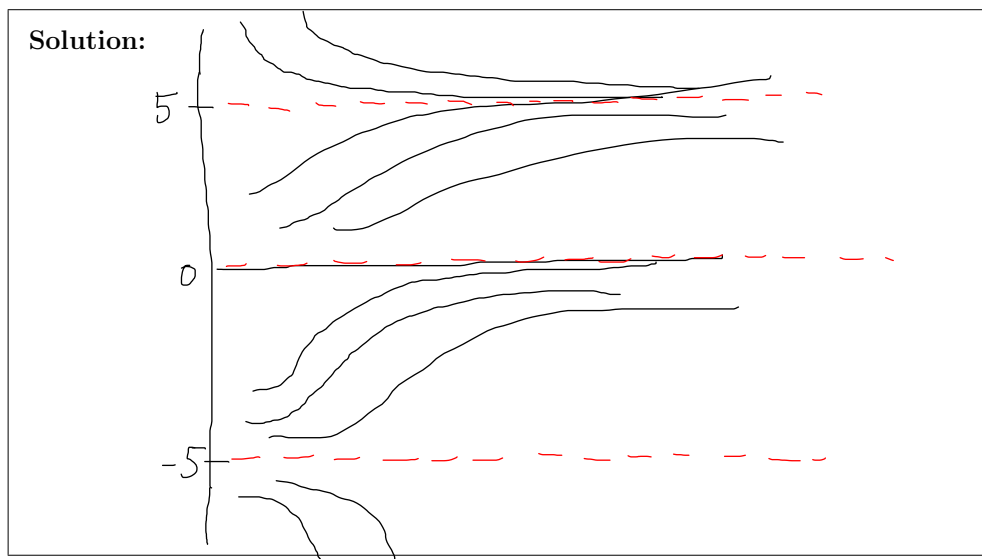
1. Determine the critical (equilibrium) points.

**Solution:**  $y = -5, 0, 5$

2. Classify each critical point as stable, unstable, or semistable.

**Solution:**  $-5$  is unstable,  $0$  is semistable, and  $5$  is stable.

3. Sketch several graphs of solutions in the  $ty$ -plane.



**Note:** There were two versions of this quiz. Some had the equation  $y' = y^2(y^2 - 25)$ , which has the same critical points, but with  $-5$  stable and  $5$  unstable. The graph is the mirror image of the one above.