Phase portraits

For the equations below, first draw the phase portrait. Then sketch a typical solution curve for each region defined by the equilibrium solutions.

1. $\dfrac{dy}{dt} = 6y - 3y^2$

2. $\dfrac{dy}{dx} = y(3 - y)(5 - y)$

3. $\dfrac{dP}{dt} = P^2(25 - P^2)$

4. $\dfrac{dy}{dx} = \dfrac{ye^y - 9y}{e^y}$