

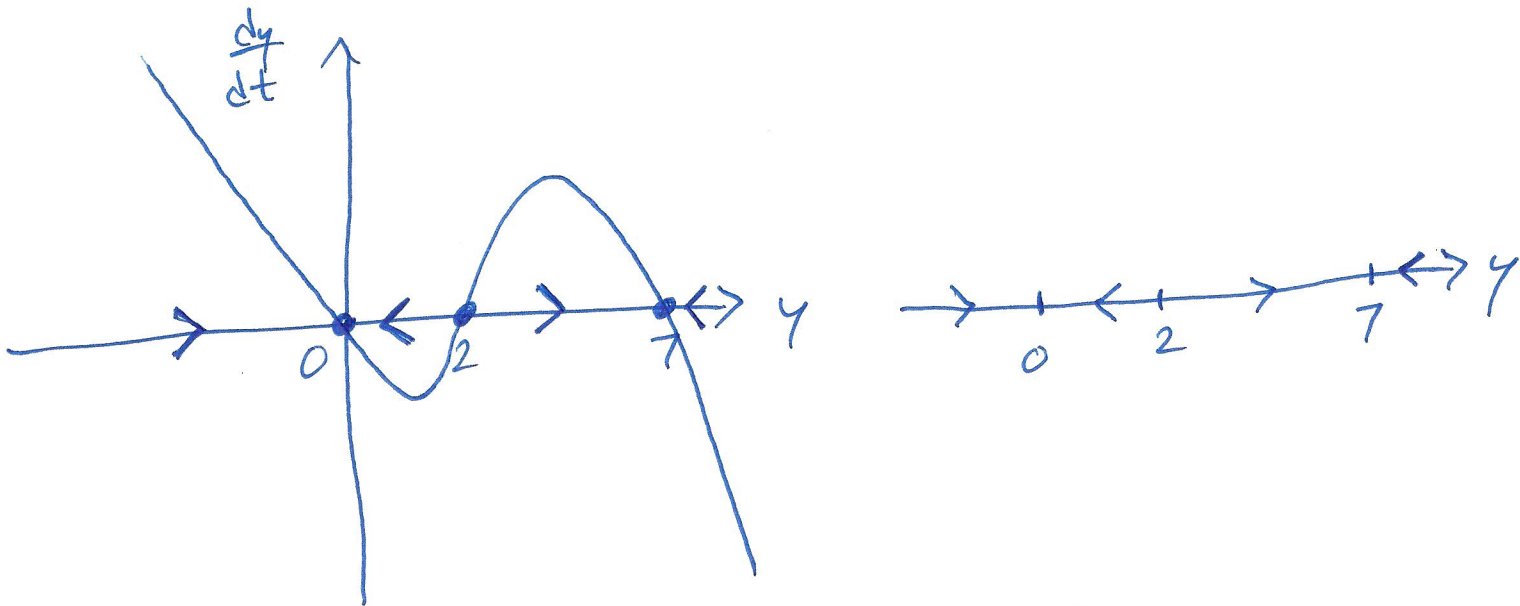
4. WE SET

$$9y^2 - y^3 - 14y = 0$$

$$-y(y^2 - 9y + 14) = 0$$

$$-y(y-7)(y-2) = 0$$

$$y=0 \quad y=7 \quad y=2 \quad \leftarrow \text{FIXED POINTS}$$



$y=0$  IS A STABLE FIXED POINT BECAUSE IF  $y$  IS SLIGHTLY LESS THAN 0,  $y$  INCREASES AND IF  $y$  IS SLIGHTLY GREATER THAN 0,  $y$  DECREASES

$y=2$  IS AN UNSTABLE FIXED POINT BECAUSE IF  $y$  IS SLIGHTLY LESS THAN 2,  $y$  DECREASES AND IF  $y$  IS SLIGHTLY GREATER THAN 2,  $y$  INCREASES

$y=7$  IS A STABLE FIXED POINT BECAUSE IF  $y$  IS SLIGHTLY LESS THAN 7,  $y$  INCREASES AND IF  $y$  IS SLIGHTLY GREATER THAN 7,  $y$  DECREASES

$$\text{IF } y(0)=1, \quad \lim_{t \rightarrow \infty} y(t) = 0$$

$$\text{IF } y(0)=3, \quad \lim_{t \rightarrow \infty} y(t) = 7$$

$$\text{IF } y(0)=2, \quad \lim_{t \rightarrow \infty} y(t) = 2$$