

$$3.4.6. \quad \dot{x} = rx - \frac{x}{1+x}$$

this curve is supercritical pitchfork.

$$\text{let } rx - \frac{x}{1+x} = 0.$$

$$x(r - \frac{1}{1+x}) = 0.$$

$$r - \frac{1}{1+x} = 0.$$

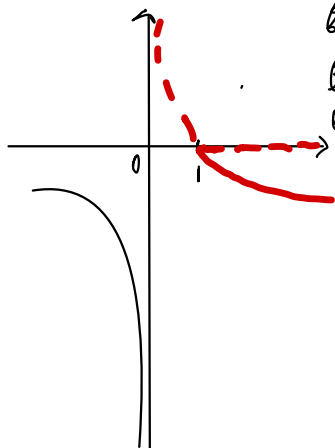
$$\frac{1}{1+x} = r.$$

$$x = \frac{1}{r} - 1 \quad \textcircled{1} \quad r = 1$$

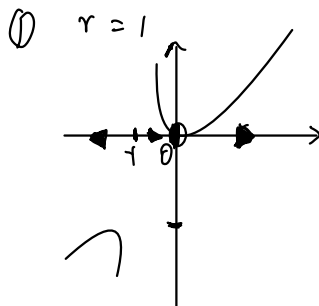
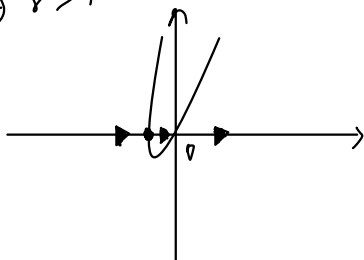
$$\textcircled{2} \quad 0 < r < 1$$

$$\textcircled{3} \quad r \geq 0$$

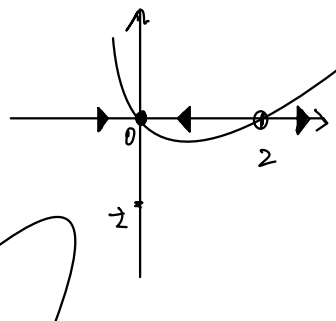
$$\textcircled{4} \quad r > 1$$



$$\textcircled{4} \quad r > 1$$



$$\textcircled{2} \quad 0 < r < 1$$



$$\textcircled{3} \quad r < 0$$

