

$$\frac{dx}{dt} = rX - acXy$$

$$\frac{dy}{dt} = \{acxy - d\}y$$

$$\textcircled{1} \frac{dx}{dt} = rX - acXy \Rightarrow 0 = rX - acXy \Rightarrow 0 = X(r - acy) \Rightarrow \textcircled{1a} X^* = 0$$

$$\Rightarrow r - acy = 0 \Rightarrow \frac{r}{ac} = y \Rightarrow \textcircled{1b} y = \frac{r}{ac}$$

$$\textcircled{2} \frac{dy}{dt} = \{acxy - d\}y \Rightarrow 0 = \{acxy - d\}y \Rightarrow 0 = y(acx - d) \Rightarrow \textcircled{2a} y^* = 0$$

$$\Rightarrow acx - d = 0 \Rightarrow \frac{acx}{ac} = \frac{d}{ac} \Rightarrow \textcircled{2b} x = \frac{d}{ac}$$