N


$R(t)$

$$R_0 \equiv \frac{\beta S}{\gamma}$$

$$S(t) + I(t) + R(t) = N$$

$$\frac{dS(t)}{dt} + \frac{dI(t)}{dt} + \frac{dR(t)}{dt} = 0$$

$$\frac{dS(t)}{dt} = -\beta(t)S(t)I(t)$$

$$\frac{dI(t)}{dt} = \beta(t)S(t)I(t) - \gamma(t)I(t)$$

$$\frac{dR(t)}{dt} = \gamma(t)I(t)$$

$$\frac{dI(t)}{dt} + \frac{dS(t)}{dt} + \frac{dR(t)}{dt} = 0$$

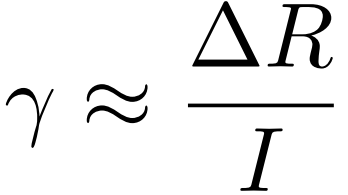
$$\frac{df(t)}{dt} \approx \frac{\Delta f}{\Delta t}$$

$\Delta t = 1$

$$\Delta S \approx -\beta S I$$

$$\Delta I \approx \beta S I - \gamma I$$

$$\Delta R \approx \gamma I$$



$$\beta \approx -\frac{\Delta S}{SI}$$

$$R_0 \equiv \frac{\beta S}{\gamma} \approx -\frac{\Delta S}{\Delta R} = \frac{\Delta R + \Delta I}{\Delta R}$$

$$R_0 \approx \frac{\Delta R + \Delta I}{\Delta R}$$

$$\Delta I < 0$$