

$$a) \frac{dy}{dx} = ry \Rightarrow \frac{dy}{y} = r dx \Rightarrow y = ae^{rx}$$

$$b) \frac{dy}{dx} = ry(s-y) \ (s > 0) \Rightarrow \left| \frac{y}{s-y} \right| = ae^{srx+c} \Rightarrow y = \frac{sa e^{srx}}{1 + a e^{srx}}$$