

12-3

Note Title

12/3/2007

In 2000, UN estimates that world population was 6.07 billion.

and that  $k = 1.14\%$

Carrying capacity of earth:  $K = 40$  billion ??

$$A = \frac{K - P_0}{P_0} = \frac{40 - 6.07}{6.07} = 5.59 \quad \text{if } t = \text{year} - 2000.$$

$$P(50) = \frac{40}{1 + 5.59 e^{-50(0.0114)}} = 9.61 \text{ billion}$$

$$P(100) = \frac{40}{1 + 5.59 e^{-100(0.0114)}} = 14.3 \text{ billion}, \quad \frac{dP}{dt} = (0.0114)(14.3)\left(1 - \frac{14.3}{40}\right) \\ \approx 105 \frac{\text{billion}}{\text{year}}$$