

$$7. \quad I_{ph2} = \left(\frac{I_2}{I_1}\right) I_{ph1} = (16 \text{ mA}) \times \left(\frac{1000}{500}\right) = 32 \text{ (mA)} \quad \#$$

Open circuit  $\rightarrow I = 0 \Rightarrow V_{oc}$

$$I = -I_{ph} + I_d \left( e^{\frac{eV_{oc}}{k_B T}} - 1 \right) = 0$$

$$V_{oc} = \frac{kT}{e} \ln \left( \frac{I_{ph}}{I_s} \right)$$

$$V_{oc2} - V_{oc1} = \frac{kT}{e} \ln \left( \frac{I_{ph2}}{I_{ph1}} \right)$$

$$V_{oc2} = V_{oc1} + \frac{kT}{e} \ln \left( \frac{I_2}{I_1} \right) = 0,5 + (0,0259) \times \ln 2 = 0,52 \text{ (V)} \quad \#$$