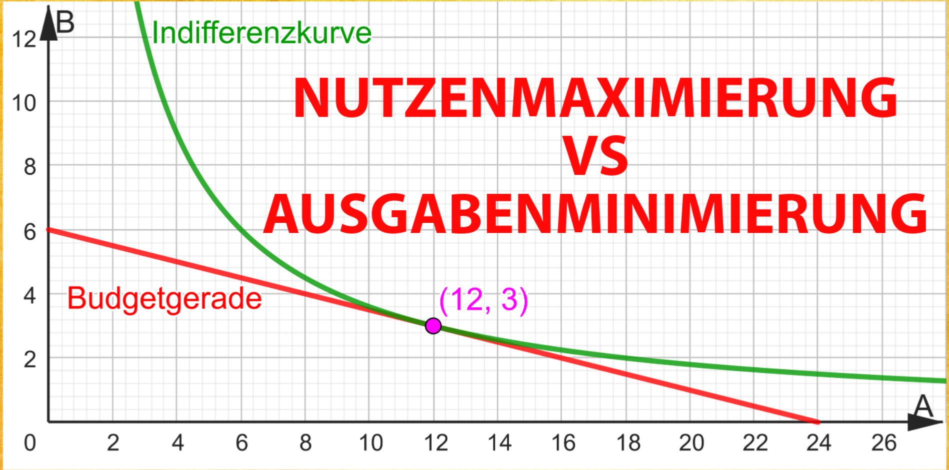
DUALITÄT



10 MIN VWL

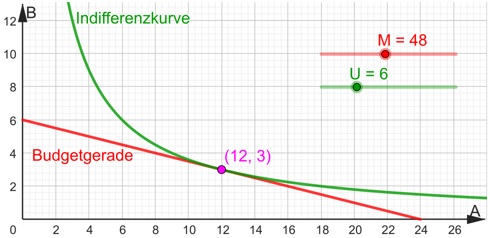
Nutzenmaximierung:

$\max_{A,B} U(A,B)$ u.d.Nb. $P_A A + P_B B = M$

$$\mathcal{L} = U(A,B) + \lambda \cdot [M - P_A A - P_B B]$$
$$\frac{\partial \mathcal{L}}{\partial A} = \frac{\partial U}{\partial A} - \lambda \cdot P_A = 0 \Rightarrow \frac{\partial U}{\partial A} = \lambda \cdot P_A$$
$$\frac{\partial \mathcal{L}}{\partial B} = \frac{\partial U}{\partial B} - \lambda \cdot P_B = 0 \Rightarrow \frac{\partial U}{\partial B} = \lambda \cdot P_B$$

$$\boxed{\frac{\frac{\partial U}{\partial A}}{\frac{\partial U}{\partial B}} = \frac{P_A}{P_B}}$$

$U(A,B) = \sqrt{AB},\ P_A = 2,\ P_B = 8,\ M = 48 \Rightarrow$



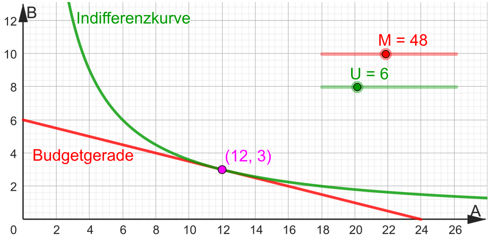
Ausgabenminimierung:

$\min_{A,B} P_A A + P_B B$ u.d.Nb. $U(A,B) = \overline{U}$

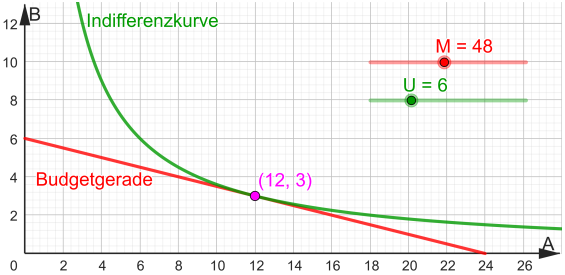
$$\mathcal{L} = P_A A + P_B B + \lambda \cdot [\overline{U} - U(A,B)]$$
$$\frac{\partial \mathcal{L}}{\partial A} = P_A - \lambda \cdot \frac{\partial U}{\partial A} = 0 \Rightarrow \lambda \cdot \frac{\partial U}{\partial A} = P_A$$
$$\frac{\partial \mathcal{L}}{\partial B} = P_B - \lambda \cdot \frac{\partial U}{\partial B} = 0 \Rightarrow \lambda \cdot \frac{\partial U}{\partial B} = P_B$$

$$\boxed{\frac{\frac{\partial U}{\partial A}}{\frac{\partial U}{\partial B}} = \frac{P_A}{P_B}}$$

$U(A,B) = \sqrt{AB},\ P_A = 2,\ P_B = 8,\ \overline{U} = 6 \Rightarrow$



$U(A,B) = \sqrt{AB}$, $P_A = 2$, $P_B = 8$, $M = 48$, $\overline{U} = 6$



Nutzenmaximierung

Lege **Budget** M (hier $M = 48$) und damit **Budgetgerade** fest, auf der (A^*, B^*) liegen muss

$\Rightarrow$ finde zugehörige **Indifferenzkurve** (hier mit $\overline{U} = 6$).

Ausgabenminimierung

Lege **Nutzen** $\overline{U}$ (hier $\overline{U} = 6$) und damit **Indifferenzkurve** fest, auf der (A^*, B^*) liegen muss

$\Rightarrow$ finde zugehörige **Budgetgerade** (hier mit $M = 48$).