



Por 2º ley de Kirchhoff:

$$U_{AB} = U_F - I_F \cdot R_i$$

a) Circuito abierto $\rightarrow I_F = 0 \rightarrow U_{AB} = U_F = \boxed{12 \text{ V}}$

Cortocircuito $\rightarrow R_c = 0 \rightarrow U_F - I_F \cdot R_i = 0$

$$I_F = \frac{U_F}{R_i} = \frac{12 \text{ V}}{100 \Omega} = \boxed{0,12 \text{ A}}$$

b) Si $R_c > 0 \Rightarrow U_F - I_F \cdot (R_i + R_c) = 0$
 $U_{AB} - I_F \cdot R_c = 0$

$$\therefore I_F = \frac{U_F}{R_i + R_c}$$

$$U_{AB} = \frac{U_F \cdot R_c}{R_i + R_c}$$

① Caso $R_c = 50 \Omega$

$$I_F = \frac{12 \text{ V}}{150 \Omega} = \boxed{0,08 \text{ A}} \quad \left\{ \quad U_{AB} = \frac{12 \text{ V} \cdot 50}{150} = \boxed{4 \text{ V}} \right.$$

② Caso $R_c = 100 \Omega$

$$I_F = \frac{12 \text{ V}}{200 \Omega} = \boxed{0,06 \text{ A}} \quad \left\{ \quad U_{AB} = \frac{1}{2} U_F = \boxed{6 \text{ V}} \right.$$

③ Caso $R_c = 500 \Omega$

$$I_F = \frac{12 \text{ V}}{600 \Omega} = \boxed{0,02 \text{ A}} \quad \left\{ \quad U_{AB} = \frac{5}{6} U_F = \boxed{10 \text{ V}} \right.$$

