

# IDEAL TRANSFORMER

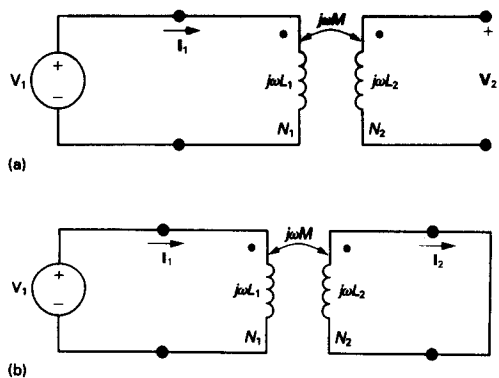


Figure 9.41 The circuits used to verify the volts-per-turn and ampere-turn relationships for an ideal transformer.

Assume:

- 1)  $k = 1$
- 2)  $L_1 = L_2 = \infty$
- 3)  $R_1 = R_2 = 0$

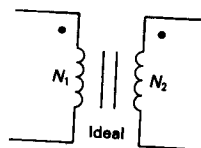


Figure 9.42 The graphic symbol for an ideal transformer.

$$\frac{V_1}{N_1} = \frac{V_2}{N_2} \quad (9.83)$$

$$I_1 N_1 = I_2 N_2 \quad (9.86)$$

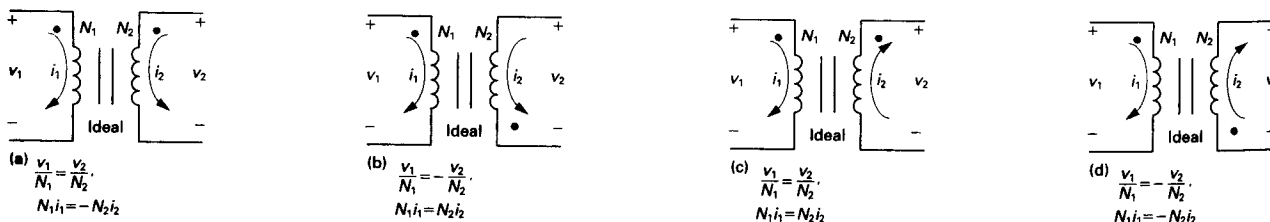


Figure 9.43 Circuits that show the proper algebraic signs for relating the terminal voltages and currents of an ideal transformer.

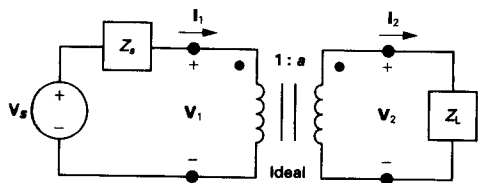


Figure 9.47 Using an ideal transformer to couple a load to a source.

$$Z_{IN} = \frac{V_1}{I_1}$$