

9. The ratio of the voltage in the secondary of a transformer to the voltage in the primary is the same as the ratio of the number of turns in the secondary to the number of turns in the primary.

$$V_2 / V_1 = N_2 / N_1$$

Multiplying both sides of the equation by N_1 gives us N_2 , the number of turns in the secondary.

$$N_2 = (V_2 / V_1) N_1$$

$$N_2 = (12 \text{ V} / 120 \text{ V}) (300 \text{ turns})$$

$$N_2 = 30 \text{ turns}$$

Thus a step-down transformer has fewer turns on its secondary than on its primary.