Name:	

1) Currents of 0.25 A and 0.95 A flow through the primary and secondary coils of a transformer respectively, if there are $1.0x10^3$ turns in the primary coil how many turns are in the secondary coil?

$$\frac{N_{p}}{N_{s}} = \frac{I_{s}}{I_{p}} \frac{1.0 \times 10^{3}}{\frac{3}{2}} = \frac{0.95}{0.25} \frac{100}{100} = \frac{0.95}{0.25} = \frac{1.0 \times 10^{3}}{0.25} = \frac{0.95}{0.25} = \frac{1.0 \times 10^{3}}{0.25} = \frac{0.95}{0.25} = \frac{1.0 \times 10^{3}}{0.25} = \frac{1.0 \times 10^$$

2) A step-down transformer has coils of 1.20×10^3 and 1.5×10^2 turns. The transformer is connected to a 120 volt power line, and the current in the secondary coil is 5.00 A. What is the current in the primary coil?

$$\frac{N\rho}{Ns} = \frac{I_s}{I_p} \rightarrow \frac{1.20 \times 10^3}{1.5 \times 10^2} = \frac{5.00 \text{ A}}{2.5 \times 10^2 \times 5 \div 1.20 \times 10^3} = 0.63 \text{ A}$$
Step down

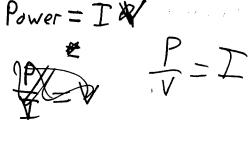
so votage decreases from primary to sec, so more longs in primary

- 3) Near your home the voltage of the power line is 3600 V. The transformer between your home and the line reduces this voltage to 120 V. If the transformer is to deliver 2400 J of energy each second to your house, what is the current in:
 - a) the primary coil

$$\frac{2400}{3600} = 0.67A$$

b) the secondary coil

$$\frac{2400}{120} = 20A$$



Name:	

4) A step-down transformer (N_p = 150, N_s =25) is connected to a 120 V primary line. If there is a 75 Ω electrical device placed in the secondary circuit, what is the current in the primary coil?

$$\frac{N_{P} - V_{P}}{N_{S}} \rightarrow \frac{150}{2S} = \frac{120}{2} \rightarrow V_{S} = 25 \times 120 \div 150$$

$$= 20V$$

$$I_{S} = \frac{V_{P}}{A} = \frac{20}{7S} = 0.2667A$$

$$\frac{150}{2S} = \frac{0.2667}{2S} \rightarrow I_{P} = 0.044A$$

5) If the voltage and current of the primary coil is 120 V and 3.0 A, what is the power delivered to the secondary coil?

Power is some in each

$$SO_{s} = P_{p} = VI = 120 \times 3 = 360 \text{ Wolts}$$

6) If the power delivered to the secondary coil of a step-up transformer is 50.0 from a 120 V power line, what is the current in the primary coil?

$$\frac{50\text{ w.lts}}{120\text{ V}} = I$$

$$= 0.42\text{ A}$$

Name:		

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7) A transformer (N_p = 550, N_s =36) is connected to a 120 V power line. If the current in the primary coil is 1.0 A, what is the power in the secondary coil?

Vollage, conent and power

Power is some in each s

$$\frac{550}{36} = \frac{\Gamma_s}{\Gamma_e}$$

$$\frac{550}{36} = \frac{1}{?} \rightarrow \frac{1}{?} = \frac{36 \times 1 \div 550}{= 0.06545}$$

$$= 0.06545$$
Power = (7.85 W)

8) A 100 W transformer (Ns = 1500) has an input voltage of 9.0 V and an output current of 0.65 A. How many turns are on the primary coil?

Since it is loow we can colculate

$$\frac{P}{V} = I \qquad \Rightarrow \frac{100}{9} = 11.11 \text{ A}$$

$$\frac{\overline{I_s}}{\overline{I_p}} = \frac{\overline{N_p}}{N_s} \rightarrow \frac{0.65}{11.11} = \frac{?}{1500}$$