Name: _____ Phys 12

Worksheet 6.9 Transformers *Do on separate sheet of paper.*

1) Currents of 0.25 A and 0.95 A flow through the primary and secondary coils of a transformer respectively if there are 1.0×10^3 turns in the primary coil how many turns are in the secondary coil? (2.6×10^2)

2) A step-down transformer has coils of 1.20×10^3 and 1.5×10^2 turns. If the transformer is connected to a 1.20×10^2 V power line, and the current in the secondary coil is 5.00 A. what is the current in the primary coil? (0.625 A)

3) Near your home the voltage pf the power line is 3.6×10^3 V. The transformer between your home and the line reduces this voltage to 1.20×10^2 V. If the transformer is to deliver 2.4×10^3 J of energy each second to your house, what is the current in:

a) the primary coil (0.67 A)
b) the secondary coil (2.0×10^1A)

4) A step-down transformer ($N_p = 1.50 \times 10^2$, $N_S = 25$) is connected to a 1.20×10^2 V primary line. If there is a 75Ω electrical device placed in the secondary circuit, what is the current in the primary coil? (4.4×10^{-2}A)

5) If the voltage and current of the primary coil is 1.20×10^2 V and 3.0 A, what is the power delivered to the secondary coil? (3.6×10^2W)

6) If the power delivered to the secondary coil of a step-up transformer is 5.0×10^1 W from a 1.20×10^2 V power line, what is the current in the primary coil? (0.42 A)

7) A transformer ($N_p = 5.5 \times 10^2$, $N_S = 36$) is connected to a 1.20×10^2 V power line. If the current in the primary coil is 1.0 A, what is the power in the secondary coil? (120 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? (88)