Transformers

(1)
$$\frac{N_s}{N_p} = \frac{V_s}{V_p}$$
$$\frac{1}{13} = \frac{V_s}{120} \qquad V_s = 9.2\,V$$

(2)
$$\frac{N_s}{N_p} = \frac{V_s}{V_p}$$
$$\frac{N_s}{21} = \frac{4320}{120} \qquad N_s = 756$$

(3) (a) the voltage is lower on the secondary side, so it is a step-down transformer.

(b)
$$\frac{N_s}{N_p} = \frac{V_s}{V_p} = \frac{10}{120} = \frac{1}{12}$$

(4)
$$\frac{N_s}{N_p} = \frac{I_p}{I_s}$$
$$\frac{1}{8} = \frac{I_p}{3.4} \qquad I_s = 0.425\,A$$

(5)
$$P = IV$$
$$= (1.5\times10^{-3})(5160\,v)$$
$$= 7.7\,W$$

$$\frac{N_s}{N_p} = \frac{V_s}{V_p}$$
$$\frac{43}{1} = \frac{V_s}{120}$$
$$V_s = 5160\,V$$

(6)
$$\frac{N_s}{N_p} = \frac{V_s}{V_p}$$
$$= \frac{17925}{120}$$
$$\frac{N_s}{N_p} = \frac{149}{1}$$

$$P = IV$$
$$95 = (5.3\times10^{-3})\,V$$
$$V = 17\,925\,V$$