521 # 4-11, 29, 30, 32, 34, 36

4) $R = \frac{V}{I} = \frac{120}{4.6} = 26\ \Omega$

5) $4800 = \frac{V}{.25}$ 1200V

6) $I = \frac{Q}{t}$ $75 = \frac{Q}{3600}$ $Q = 270000\ C$

7) a) $8.6 = \frac{240}{I}$ $I = 28\ A$

b) $I = \frac{Q}{t}$ $28 = \frac{Q}{3000}$ $Q = 84000\ C$

8) $2.5 \times 10^{-5} = \frac{V}{4100}$ $V = .103\ V$

9) a) $R = \frac{120}{13.5} = 8.89\ \Omega$

b) $I = \frac{Q}{t}$ $13.5 = \frac{Q}{900}$ 12150 C

10) $I = 3.5A$ $I = \frac{Q}{t}$ $3.5 = \frac{Q}{60}$ $Q = 208\ C$

$208C \times \frac{1\ electron}{1.602 \times 10^{-19}\ C} = 1.3 \times 10^{21}$ electrons

11) a) $R = 43\ \Omega$ $43 = \frac{204}{I}$ b) $R = 37$

$240(.85) = 204V$ $I = 4.7A$ $37 = \frac{240}{I}$ $I = 6.5A$

29) $P=VI$ $R=\frac{V}{I}$ $I=\frac{V}{R}$ $P=\frac{V^2}{R}$

$.25=\frac{V^2}{3900}$ $V=31V$

30) a) $P=\frac{V^2}{R}$ $75=\frac{110^2}{R}$ $R=161\Omega$

b) $250=\frac{110^2}{R}$ $R=48\Omega$

32) $P=VI$

$45000=340I$ $I=132$ Amps

34) a) $R=\frac{V}{I}=\frac{12}{.60}=20\Omega$

b) $P=VI=12(.60)=7.2W=\frac{7.2J}{sec}$

$\frac{7.2J}{5}\times\frac{60sec}{min}=432J/min$

36) $P=\frac{V^2}{R}$ $75=\frac{240^2}{R}$ $R=768\Omega$

$P=\frac{V^2}{R}=\frac{120^2}{768}=19W$ much less bright