

Chapter 6

Energy, Power and Voltage

6.1 (a) decrease, (b) stay constant (assuming the wire is a relatively perfect conductor)

6.2 4.5 C

6.3 (a) Voltage is the difference in electric potential between two points; electric potential is the electric energy per charge, (b) V, V and J

6.4 The plate at the higher potential

6.5 c

6.6 (a) 5 V, (b) 2 V

6.7 (a) 5 V, (b) 1 V

6.8 (a) 0.3 kWh, 1.1×10^6 J, 3 cents; (b) .72 kWh, 2.6×10^6 J, 7.2 cents; (c) .6 kWh, 2.2×10^6 J, 6 cents; [note that the light bulb uses the most energy since it is used so long]

6.9 (a) 1.25 A, (b) 0.5 A, (c) 10 A; [note that the maximum current is drawn by the iron, which is associated with high heat]

6.10 The lit bulb