

## Quick Quiz 17.1, 17.4-17.7

QQ 17.1 pg 532:  $d < b = c < a$

$$\boxed{I = \text{current}}$$

QQ 17.4 pg 540: b, d - because diameter of wire increased resistance will go down, allowing current to increase

QQ 17.5 pg 540: a, resistance of shorter wire is less, therefore the Power (rate of heating) is greater in shorter wire

$$P = I^2 R \quad (\text{current will be higher in shorter wire})$$

QQ 17.6 pg 543:  $a = b > c = d > e = f$

- a & b have full current of circuit

- c & d have a higher Power rating than e & f since  $P = IV$ , that means current is higher (both branches of circuit have same voltage)

- e & f have least current since P rating is smallest

QQ 17.7 pg 543: B, B

- question a:  $P = \Delta V^2 / R$ , voltage is same for each resistor, and resistor a has a higher resistance causing lower power

- question b:  $P = I \Delta V$ , current is higher in lower resistance



Conceptual Questions Pg 549: 1, 4, 5, 6, 8-10

1.) because there are a lot of charge carriers in conductors

4.) - # of cars would equal charge ( $Q$ )

- rate of cars past a given point equal current ( $I$ )

5.) Voltage is the energy the charge has, the current is what would surge through the conductor

6.) a volt meter measures voltage

8.) current can only flow if a potential difference exists between two points.

by keeping one hand in pocket you

stop a potential difference from happening (this is why a bird can sit on a power line)

9.) length, diameter, material, temperature,

10.) the resistance

