Note Title 20/04/2011

A blender draws 0.25 A when connected to a 120 V outlet.

a) What is the resistance of the blender?
b) How much power does it use?
c) How many electrons pass through the blender in 15 s?

a.) $V = IR \qquad R = \frac{V}{I} = \frac{120\,V}{0.25\,A} = 480\,\Omega$

b) $P = IV = (0.25\,A)(120\,V) = 30\,W$

c) $I = \frac{q}{t} \qquad q = I \cdot t = (0.25\,A)(15\,s)$

$= 3.75\,C$

$1\,e^- = 1.6 \times 10^{-19}\,C$

$3.75\,C \times \frac{1\,e^-}{1.6 \times 10^{-19}\,C} = 2.34 \times 10^{19}\,e^-$