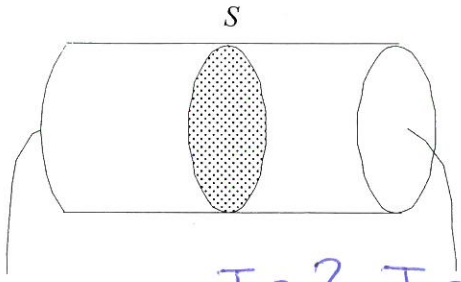
Q = 240 C charge — t

1 A charge of 240 coulombs passes through a metal wire in 2.0 minutes. The potential difference across the ends of the wire is 10.0 V.

V = 10 J/C not necessary!



I = ? I = A = C/S

What is the intensity of the electric current passing through the wire?

A) 1.2 A

B) 2.0 A

C) 2.4 A

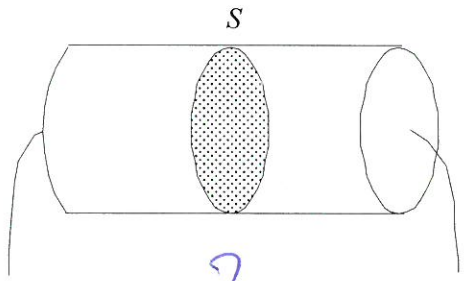
D) 5.0 A

$I = \frac{240\,C}{2.0\,min} \times \frac{1\,min}{60\,s} = 2.0\,A$ Sig figs

V = J/C

2 A voltage of 5.0 V is applied to the ends of a metal wire. An electric current of 6.0 A = I flows in the wire.

C/S



?

t

What is the quantity of electric charge which crosses a section S of this wire in 30 seconds?

A) 180 C

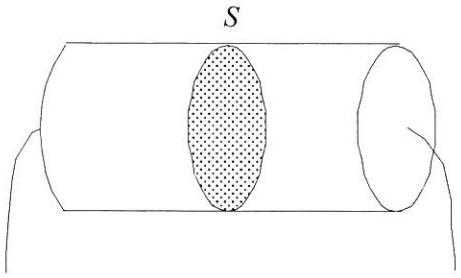
B) 150 C

C) 90 C

D) 30 C

$6.0\,A = \frac{6.0\,C}{s} \times 30\,s = 180\,C$

3 When a voltage of 8.0 V is applied to the ends of a metal wire, an electric current of 4.0 A flows in the wire.



How many electrons pass through section S of the wire in 1 minute?

A) 3.0×10^{21} electrons

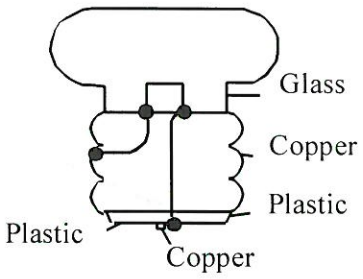
B) 2.5×10^{21} electrons

C) 2.0×10^{21} electrons

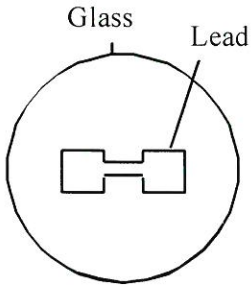
D) 1.5×10^{21} electrons

$\frac{4.0\,C}{1\,s} \times \frac{60\,s}{1\,min} \times \frac{1e^-}{1.6\times10^{-19}\,C} =$

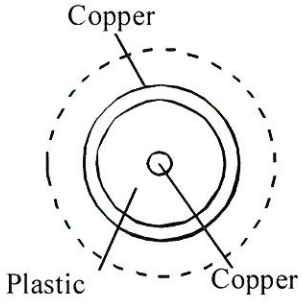
4 The diagram below shows an electric fuse.



Side View (cross-section)



View from above



View from below

What is the function of the glass and the plastic?

to be able to see whether fuse has blown
insulation

1. An electron is located 1.00×10^{-10} m to the right of another electron.

What is the force on the first electron from the second electron?

What if these are protons instead?

$F = \frac{k q_1 q_2}{r^2}$

do the math