Current & Charge Calculations Worksheet

current = $\frac{\text{charge moving past a point}}{\text{time}}$

$I = \frac{Q}{t}$ Units: I is A (amperes), Q is C (coulombs), t is s (seconds)

1C = 6.24×10^{18} electrons

1. Find the unknown quantity:

a) I = 0.4A Q = t = 20 s	b) I = ? Q = 240 C t = 300 s	c) I = 2 A Q = 400 C t = ?

2. Find the unknown quantity (**CONVERT FIRST to SECONDS**)

a) I = Q = 140 C t = 4 min = _____ s	b) I = 0.3 A Q = t = 1.5 hours = _____ s	c) I = 0.9 A Q = t = 3 min = _____ s

WORD PROBLEMS

1. If there is a current of 10 amperes in a circuit for 10 minutes, what quantity of electric charge flows in through the circuit?

2. How much current must there be in a circuit if 100 coulombs flow past a point in the circuit in 4 seconds?

3. How much time is required for 10 coulombs of charge to flow past a point if the rate of flow (current) is 2 amperes?