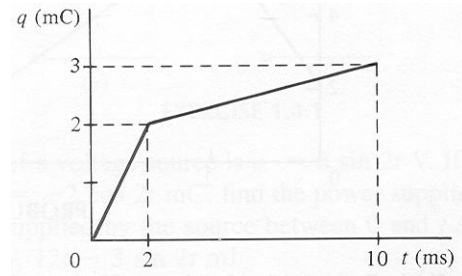


ENGR 204 Spring 2010 Homework 1 Extra problems.

- The voltage across a circuit element is 4.0 v and the charge q entering the positive terminal is as shown in the graph. Find the power delivered to the element at $t = 6.0$ ms and the total charge and total energy delivered to the element between 1 and 10 ms.



- A small rocket uses a two element circuit as shown in the figure to control a jet valve from the point of liftoff at $t = 0$ s to the rocket runs out of fuel at 1.0 minute. The energy that must be supplied by element 1 for the 1 minute period is 40 mJ. Element 1 is a battery to be selected. It is known that $i(t) = De^{-t/60}$ mA for $t \geq 0$, and the voltage across the second element is $v_2 = Be^{-t/60}$ volts for $t \geq 0$. The maximum possible magnitude of the current, D , is limited to 1.0 mA. Find the required constants D and B and describe the required battery. Hint: find the energy supplied by the first element for the 1 minute period...

