

Class List:

THE UNIVERSITY OF BRITISH COLUMBIA
Department of Electrical and Computer Engineering
ELEC 251 - Circuit Analysis I

Mark (%)

Family name: Tsai

Training Set #1

IT IS DUE AS PER THE WEB SITE
IN THE MARKING BOX
BY McLEOD CLOSING TIME.

Given name: Larry

STUDENT NUMBER

a	b	c	d	e	f	g	h
7	0	5	2	3	0	9	7

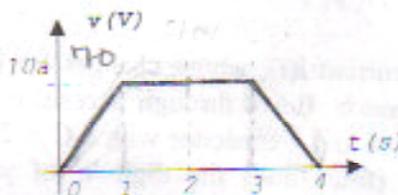
When picking up a digit from your student number, that digit has to be non-zero. If the digit specified by the figure happens to be a zero, take the digit on its right instead, but if that is also a zero, keep going to the right until you find a non-zero digit. If you reach the extreme right digit and it's still a zero, start with the digit 'a' on the far left.

- 1) A rechargeable flashlight battery is capable of delivering $10b^5$ mA (ten times b, where b is the second digit from the left, after ensuring it is not zero as per the instructions above) for about 10g hours. How much charge can it release at that rate? If the terminal voltage is $(1+e)$ volts, how much energy can the battery deliver?
Answer: $q = 1.62 \times 10^4$ C energy = 6.48×10^4 J

- 2) The current entering the positive terminal of a device is $(d+h)$ amps. The voltage across the device (voltage drop, difference in height between the two terminals of the device) is $(b+f)$ volts. Where d, h, b and f, are taken from your student number after ensuring they are not zero as per the instructions above.
a) Find the charge delivered to the device between $t=0$ and $t=h$ seconds.
b) Calculate the corresponding power absorbed.
c) Determine the energy absorbed in 3 seconds.

Answer: a) 63C b) 126W c) 378J

- 3) Figure 1 shows the current through and the voltage across a device. Find the total energy absorbed by the device for the period $0 < t < 4$ s.
Answer: energy = _____



$$W = \int_0^4 v(t)i(t)dt$$

$$y = 25x$$

$$i(t) = 25t$$

$$v_1(t) = 10t$$

- 4) From the course booklet that you bought from the UBC Bookstore, solve end of chapter questions: 1.2, 1.7, 1.10 and 1.9.