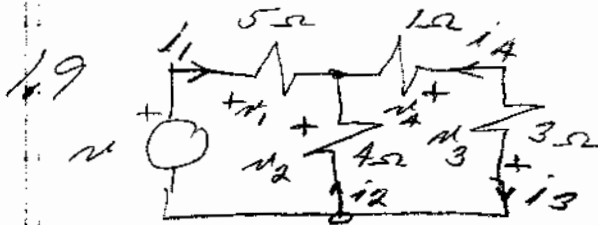
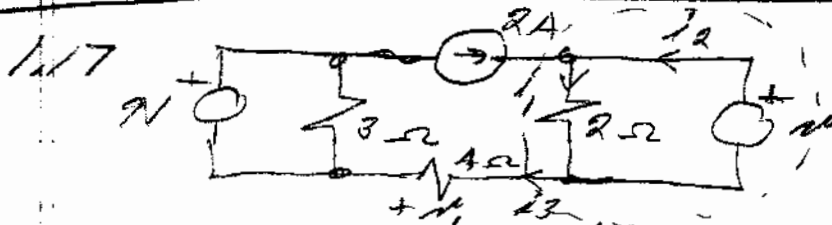


$$i(t) = \frac{dq}{dt}$$



- a) $i_1 = 4$; $v_1 = 20V$
- b) $i_2 = -2$; $v_2 = 8V$
- c) $i_3 = 2$; $v_3 = -6V$
- d) $i_4 = -2$; $v_4 = -2V$



a) $v = 2V$

$$i_1 = \frac{v}{2} = 1 \quad ; \quad 2 + i_2 - i_1 = 0 \quad \therefore i_2 = -1$$

$$i_3 = i_1 - i_2 = 1 - (-1) = 2A \quad \therefore v_1 = -2 \times 4 = -8V$$

b) $v = 4V$

$$i_1 = \frac{4}{2} = 2 \quad ; \quad i_2 = i_1 - 2 = 0$$

$$i_3 = i_1 - i_2 = 2 \quad \therefore v_1 = -2 \times 4 = -8V$$

c) $v = 6V$

$$i_1 = \frac{6}{2} = 3 \quad ; \quad i_2 = i_1 - 2 = 1$$

$$i_3 = i_1 - i_2 = 2 \quad \therefore v_1 = -2 \times 4 = -8V$$

Could work problem by realizing that current into dotted region = 2A \therefore current out of region $i_3 = 2A$ independent of value of v !