



Let  $a = i_a$ ,  $b = i_b$ ,  $c = i_c$ , ..., and so on.

Then apply KCL

A:  $1 + \frac{a-c}{4} = \frac{0-a}{1}$

C:  $1 + \frac{a-c}{4} = \frac{c-d}{1}$

D:  $\frac{c-d}{1} + \frac{6}{5}(e-d) = \frac{d}{2}$

E:  $\frac{6}{5}(e-d) + e + \frac{e-3}{2} = 0$

F:  $\frac{0-a}{1} = \frac{d}{2} + \frac{e}{1} + \frac{e-3}{2}$

$\Rightarrow$  ②  $5a - c + 4 = 0$

③  $a - 5c + 4d + 4 = 0$

④  $10c - 10d + 12e - 12d - 5d = 0$

⑤  $12e - 12d + 10e + 5e - 15 = 0$

⑥  $-2a = d + 2e + e - 3$

The rest is a way to solve these equations:

$\Rightarrow$  ⑦  $-2a - d - 3e + 3 = 0$

$\Rightarrow$

	a	c	d	e	
①	-2	0	-1	-3	3
②	5	0	-1	0	4
③	1	-5	4	0	4
④	0	10	-27	12	0
⑤	0	0	0	21	-15

Answer:

$i = \frac{V_d - V_e}{\frac{6}{5}} \neq 0$

$-16d + 16 = 0$

$d = 1$

$\Rightarrow e = 1$

	a	d	e	
①	2	1	3	-3
②	0	1	15	-23
③	0	-20	9	11
④	0	-4	9	-5

	a	d	e	
①	2	1	3	-3
②	0	$\frac{-1}{2}$	$\frac{-15}{2}$	$\frac{23}{2}$
③	0	-20	9	11
④	0	-4	9	-5

	a	d	e	
①	-2	-1	-3	3
②	5	0	0	4
③	2	-19	12	8
④	0	-4	9	-5