Chap 18
like
(#53 $\Delta V = \mathcal{E} - Ir$

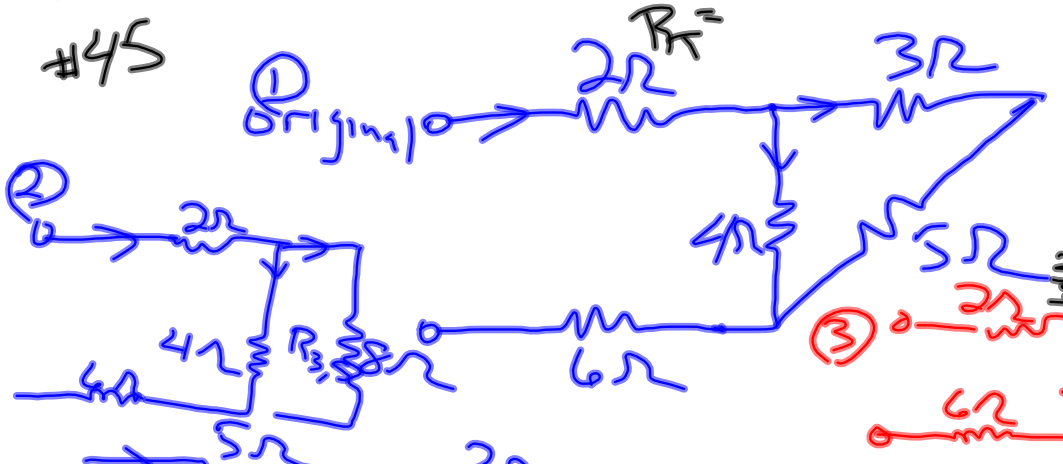
$$120 = \mathcal{E} - 15r$$
$$-\ 100 = -\mathcal{E} + 20r$$
$$20 = 5r$$
$$r = 4\Omega$$

$$120 = \mathcal{E} - 15(4)$$
$$120 = \mathcal{E} - 60$$
$$\mathcal{E} = 180$$

like chap 18 #45

④ $R_T = 2\Omega + 2\frac{2}{3}\Omega + 6\Omega = 10\frac{2}{3}\Omega$

$R_T =$



$\left(2\frac{2}{3}\right)$

$\left(1+\frac{1}{5}\right)$

$\frac{2}{3}+2 \quad \frac{2}{15}+\frac{2}{5}$

$\frac{4\cdot 8}{\cancel{4+8}}$

$R_T = R_1 + R_2 = 7\Omega$

MAD

$R_T = \frac{(5)(2)}{5+2} = \frac{10}{7}\Omega$

$R_T = \frac{10}{7}$

$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{R_T} = \frac{1}{10} + \frac{1}{15} = \frac{2}{6}$

$$A = \begin{bmatrix} 1 & -1 & -1 \\ 6 & 0 & 24 \\ 0 & -12 & 24 \end{bmatrix}_{3\times 3} \qquad B = \begin{bmatrix} 0 \\ 42 \\ 0 \end{bmatrix}_{3\times 1}$$

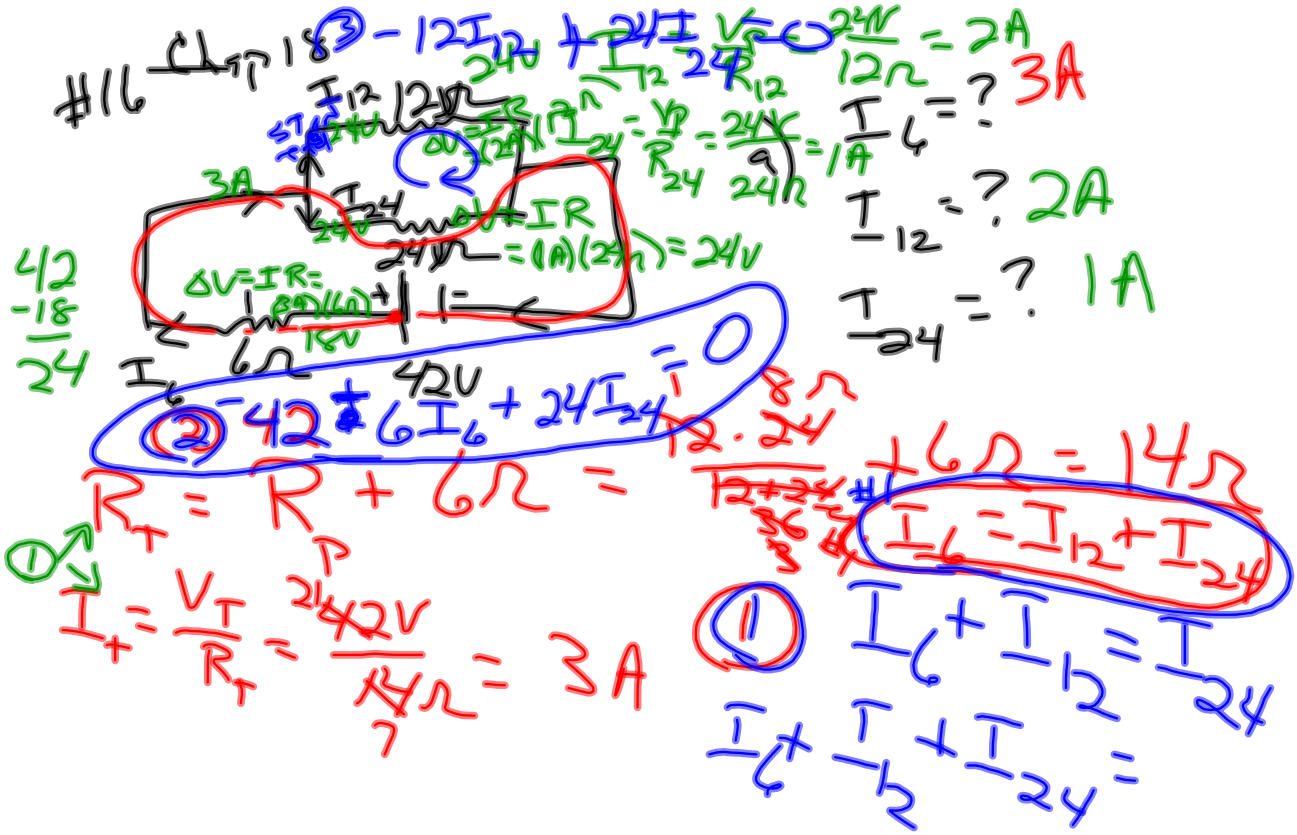
$$I_6 - I_{12} - I_{24} = 0$$

$$6I_6 + 0I_{12} + 24I_{24} = 42$$

$$0I_6 - 12I_{12} + 24I_{24} = 0$$

$$\frac{\cancel{A}X}{\cancel{A}} = \frac{B}{A} \qquad X = \underbrace{A^{-1}_{3\times 3} B_{3\times 1}}_{} = \begin{bmatrix} \\ \\ \end{bmatrix}_{3\times 1}$$

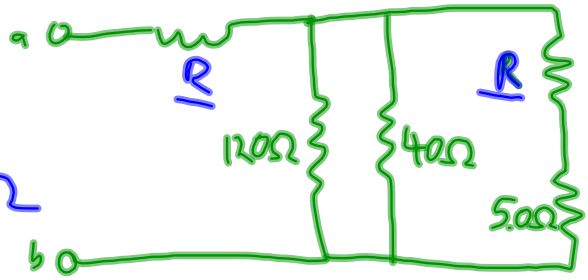
#16 Ch 18

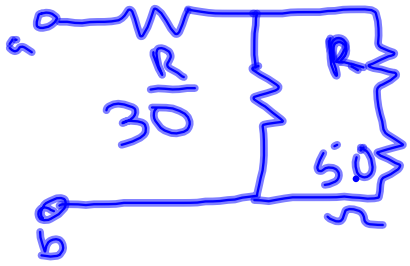

I_{12} 12Ω
3A
I_{24}
24Ω
I_6 6Ω
42V
$\Delta V = IR = (3A)(6\Omega) = 18V$
$\Delta V = IR = (1A)(24\Omega) = 24V$
$\Delta V = IR$
$I_{12} = \frac{V_P}{R_{12}} = \frac{24V}{12\Omega} = 2A$
$I_{24} = \frac{V_P}{R_{24}} = \frac{24V}{24\Omega} = 1A$
$I_6 = ?$ 3A
$I_{12} = ?$ 2A
$I_{24} = ?$ 1A
$42 - 18 = 24$
③ $-12I_{12} + 24I_{24} = 0$
② $-42 + 6I_6 + 24I_{24} = 0$
$R_T = R_P + 6\Omega = \frac{12 \cdot 24}{12+24} + 6\Omega = 14\Omega$
8Ω
$I_T = \frac{V_T}{R_T} = \frac{42V}{14\Omega} = 3A$
① $I_6 = I_{12} + I_{24}$
⑪ $I_6 + I_{12} = I_{24}$
$I_6 + I_{12} + I_{24} =$

Ch 18
11

$R_t = 75\,\Omega$

$R = ?$





$$R_p = \frac{120 \times 40}{120 + 40} = \frac{\cancel{160}\ 4}{}$$