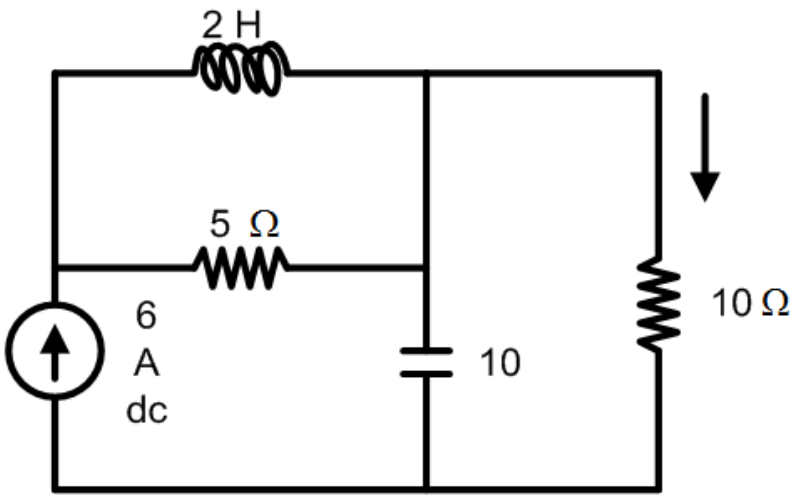
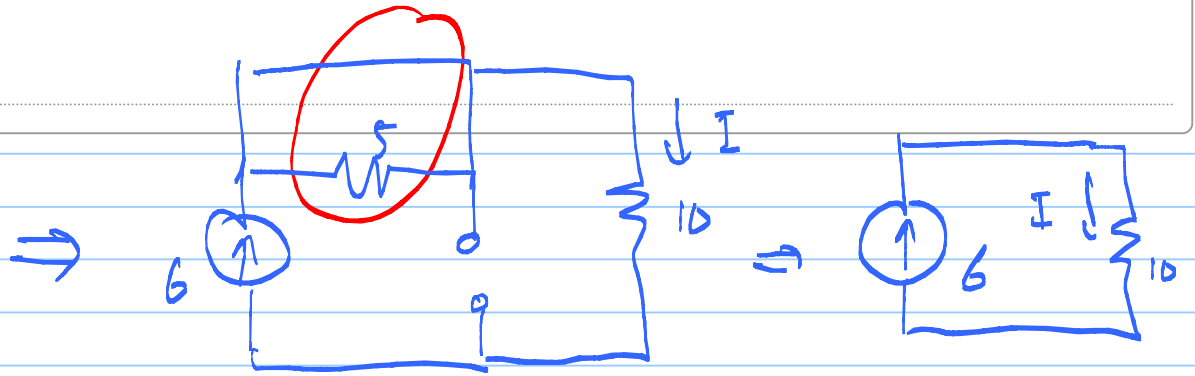
1





$R_p = \frac{5 \times 0}{5+0} = 0$

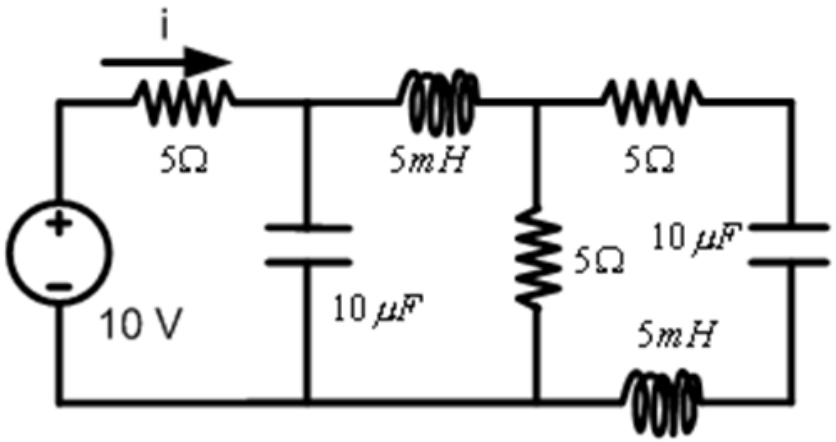
$I = 6A$

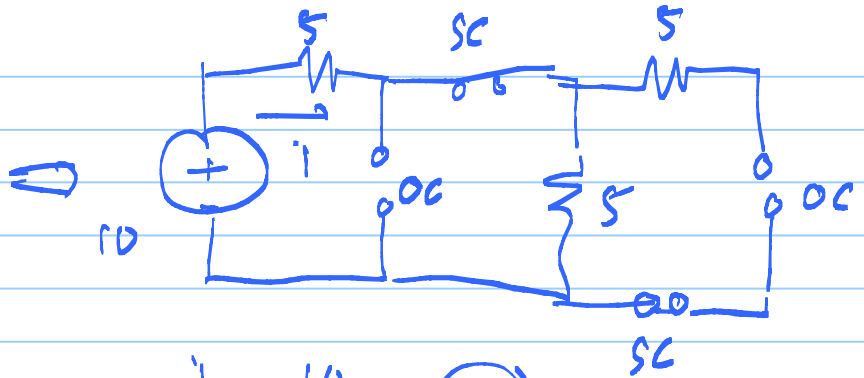
Untuk DC :

L ⇒ SC

C ⇒ OC

(2)





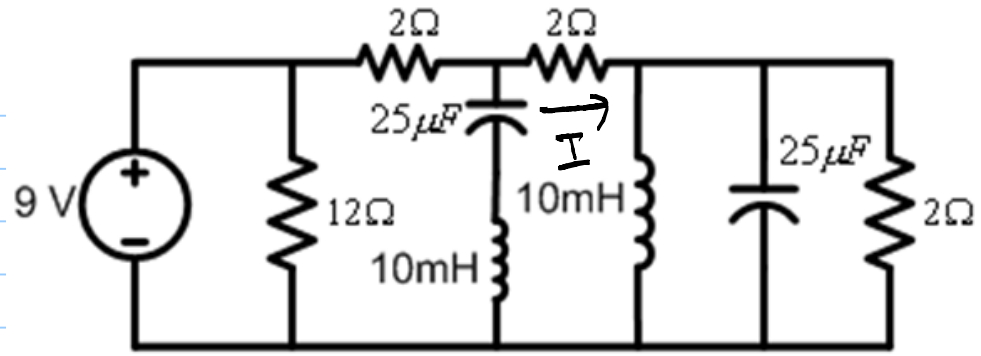
$i = \frac{10}{5+5} = 1A$

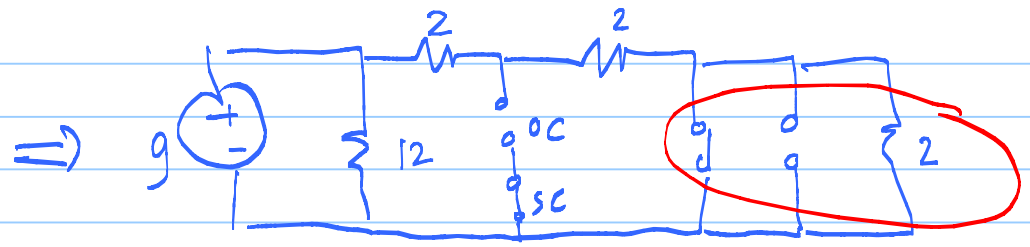
DC :

L ⇒ SC

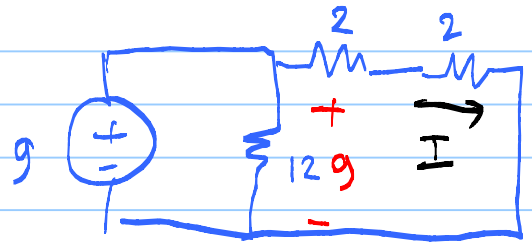
C ⇒ OC

(3)



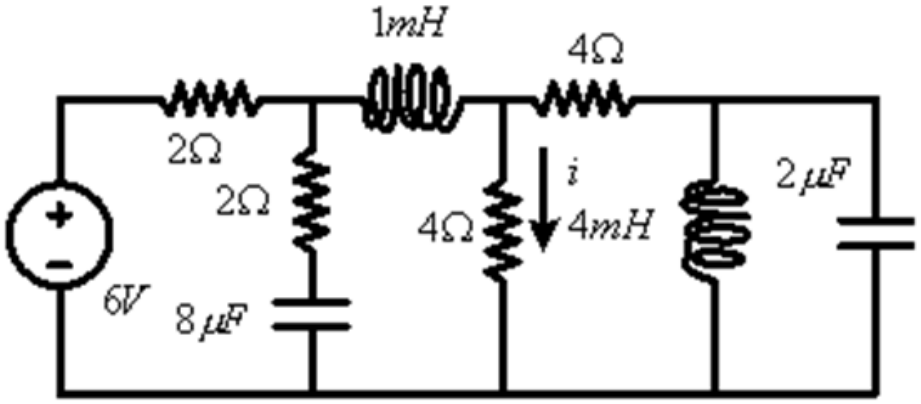


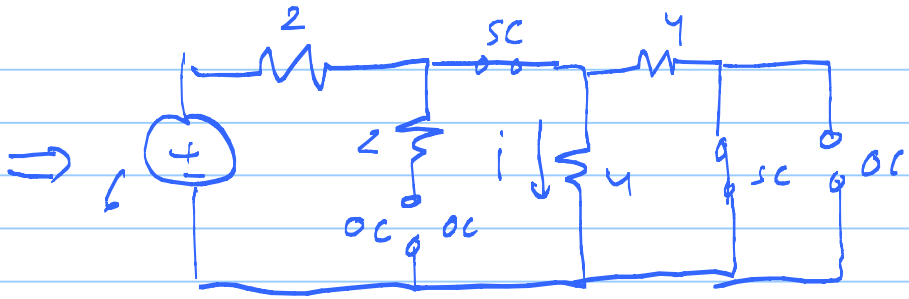
$R_p = \frac{0 \times 2}{0+2} = 0$

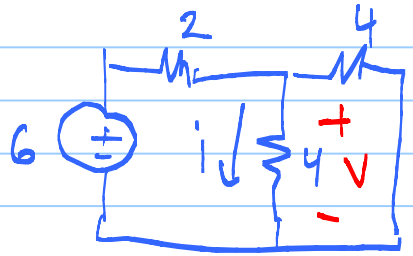


$I = \frac{g}{4}\ A$

4





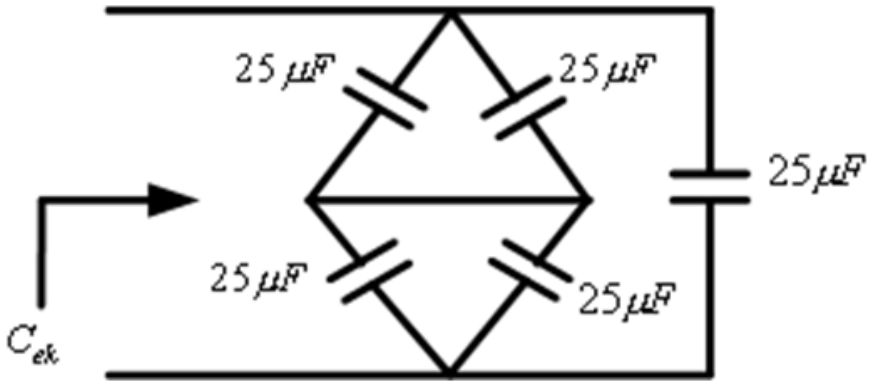


$$R_p = \frac{4 \times 4}{4+4} = 2$$

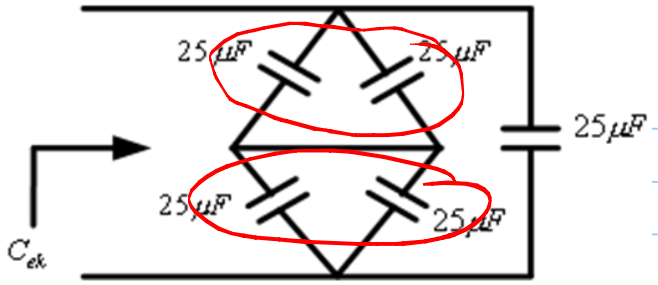
$$V = \frac{2}{2+2} \times 6 = 3$$

$$i = \frac{V}{4} = \frac{3}{4}\,A$$

5

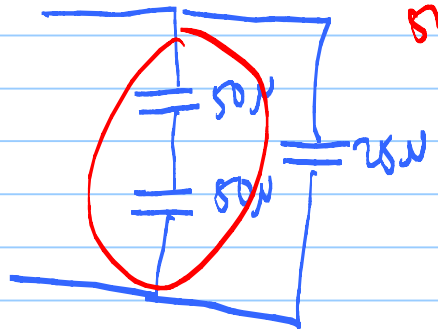


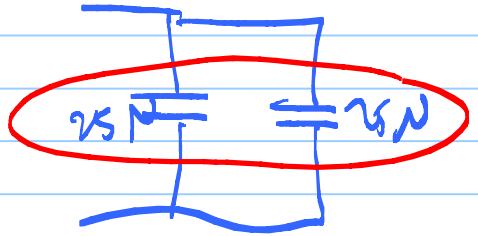
$C_p = 25\mu + 25\mu = 50\mu$



$C_p = 25\mu + 25\mu = 50\mu$

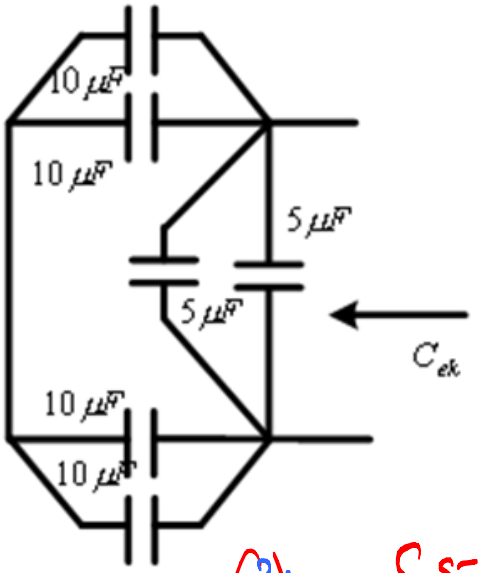
$C_s = \frac{50 \times 50}{50+50} = 25\mu$

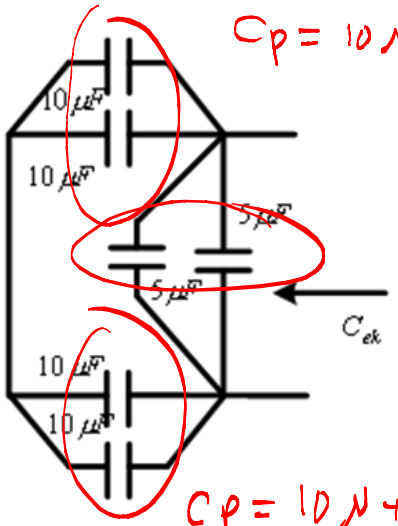




$C_p = 25\mu + 25\mu = 50\mu F$

6

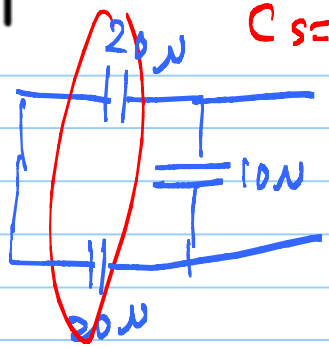




$C_p = 10N + 10N = 20N$

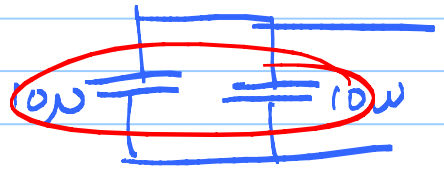
$C_p = 5N + 5N = 10N$

$C_p = 10N + 10N = 20N$



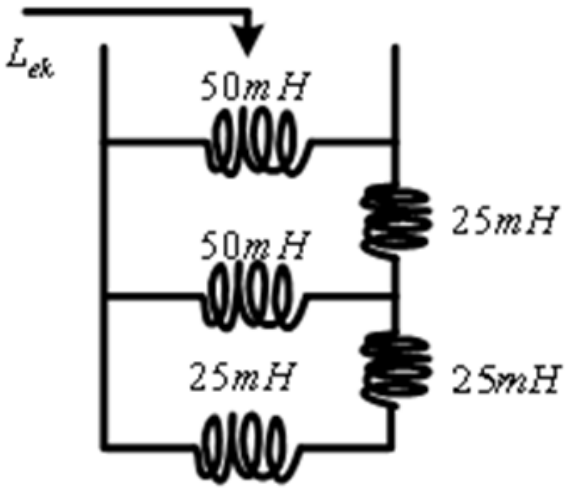
$C_s = \frac{20N \times 20N}{20N + 20N} = 10N$

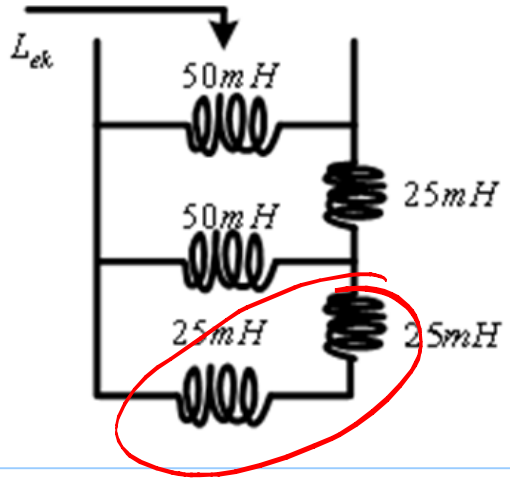
$\Rightarrow$



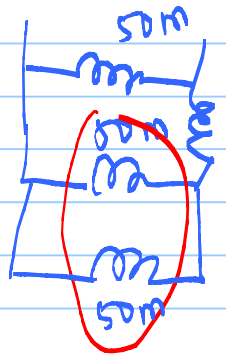
$C_p = 10N + 10N = 20N$

7



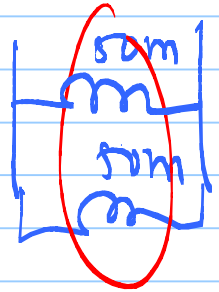


$L_s = 25m + 25m = 50mH$



$L_p = \frac{50m \times 50m}{50m + 50m} = 25m$

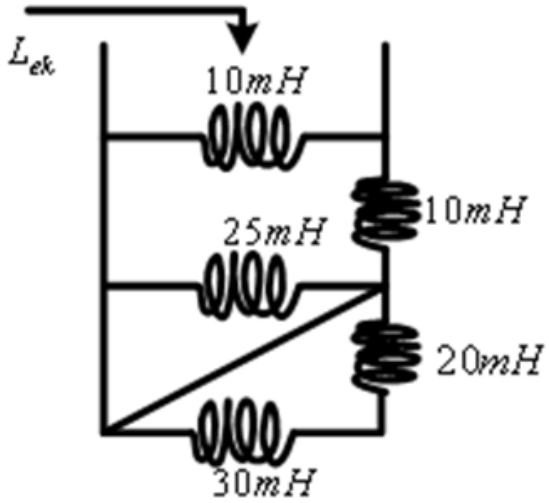
$L_s = 25m + 25m = 50m$

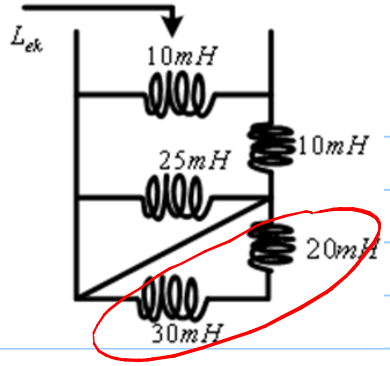


$L_p = \frac{50m \times 50m}{50m + 50m}$

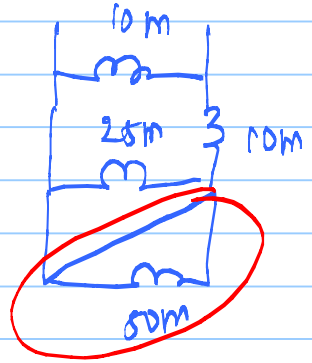
$L_p = 25mH$

8



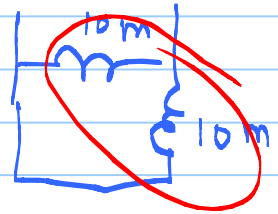


$L_s = 30m + 20m = 50m$



$L_p = \frac{0 \times 50m}{0+50m} = 0$

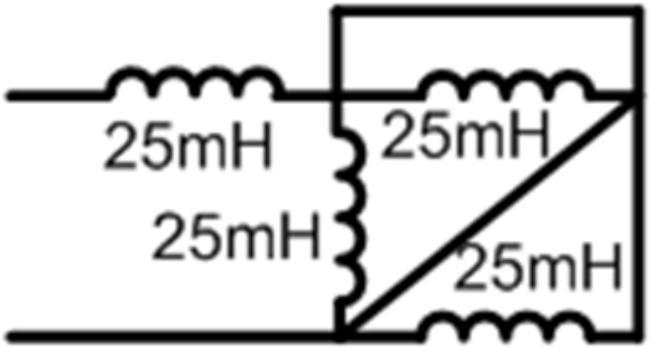
$L_p = \frac{25m \times 0}{25m+0} = 0$

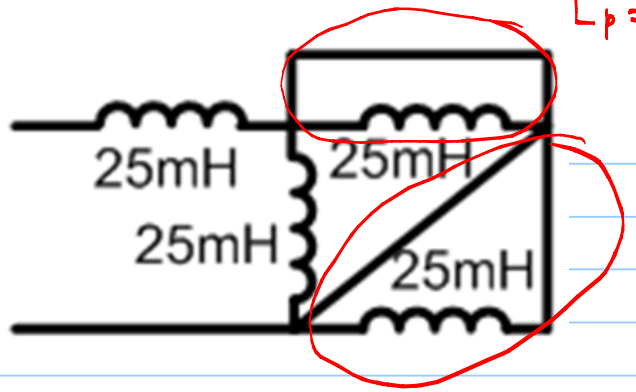


$L_p = \frac{10\,m \times 10m}{10m+10m}$

$L_p = 5mH$

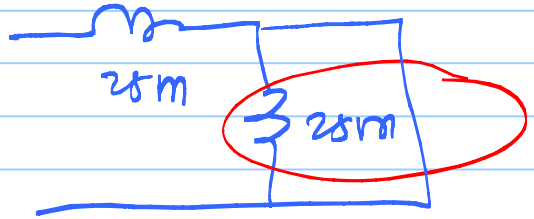
(a)



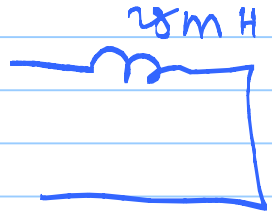


$L_p = \frac{25m \times 0}{25m + 0} = 0$

$L_p = \frac{25 \times 0}{25 + 0} = 0$



$L_p = \frac{25m \times 0}{25m + 0} = 0$

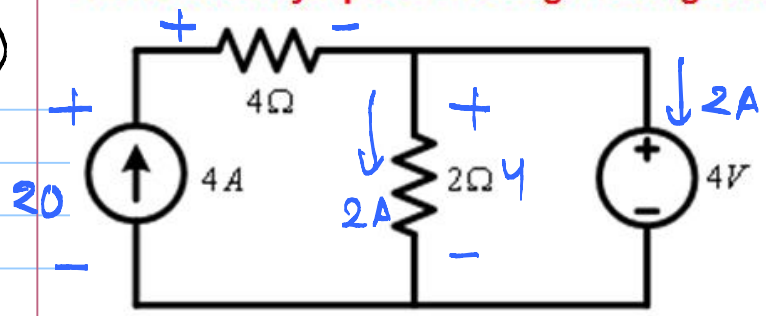


$L = 25\,mH$

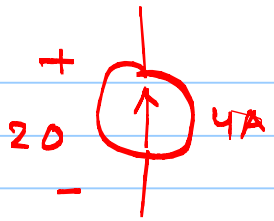
16

16

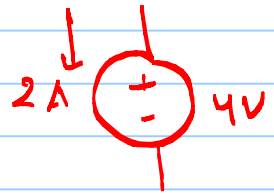
Tentukan daya pada masing-masing elemen !



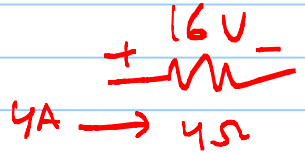
Elemen	Menyerap	Mengirim
4 A	−80W	80W
4 V	8 W	−8 W
4 Ohm	64W	−64W
2 Ohm	8W	−8 W
Σ	0 W	0 W



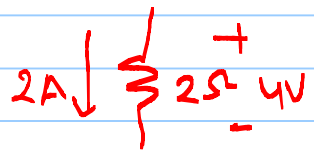
Mengirim → P = VI = 20 . 4 = 80W



Menyerap → P = VI = 2 . 4 = 8 W



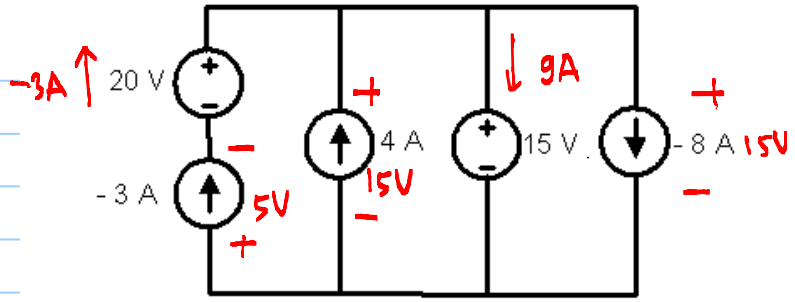
Menyerap → P = VI = 16 x 4 = 64 W



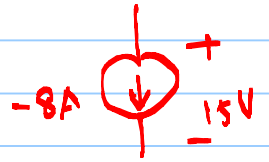
Menyerap → P = VI = 4 x 2 = 8 W

11

Tentukan daya pada masing-masing elemen !

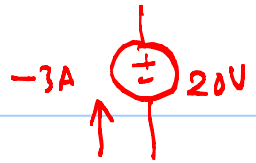


Sumber	Menyerap	Mengirim
20 V	60W	— 60W
- 3 A	—15W	15W
4 A	- 60 W	60W
15 V	135W	- 135W
- 8 A	—120W	120 W
Σ	0	0

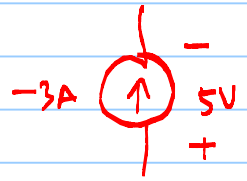


Menyerap

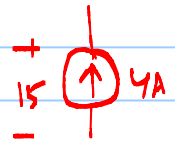
$P = V \cdot I = 15 \times (-8) = -120\ W$



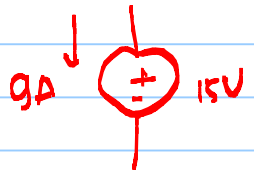
Mengirim → $P = V \cdot I = 20 \times (-3) = -60\ W$



Menyerap → $P = V \cdot I = 5 \times (-3) = -15\ W$

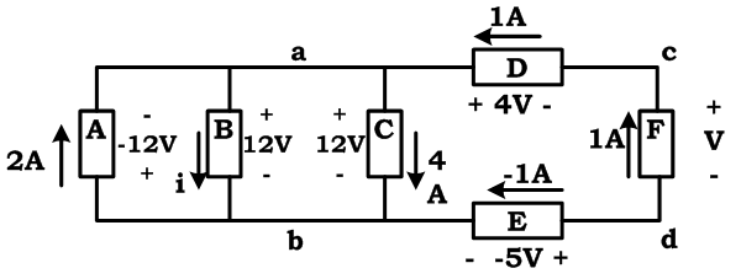


Mengirim → $P = V \cdot I = 15 \times 4 = 60\ W$



Menyerap → $P = V \cdot I = 15 \times 9 = 135\ W$

(12)



a. Tentukan arus *i*, kemudian tentukan daya pada elemen B. Apakah elemen B mencatu (mengirim) daya <u>atau</u> menyerap daya?

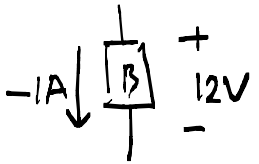
b. Tentukan tegangan *v*, kemudian tentukan daya pada elemen F. Apakah elemen F mencatu(mengirim) daya <u>atau</u> menyerap daya?

c. Tunjukkan bahwa pada rangkaian ini *kesetimbangan daya* dipenuhi.

a. $\Sigma I = 0$

$2 + 1 = i + 4$

$i = -1A$



Menyerap :

$P = VI = 12 \times (-1)$

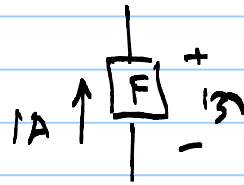
$P = -12W$

(Mengirim)

b. $\Sigma V = 0$

$-V - 4 + 12 - (-5) = 0$

$V = 13V$



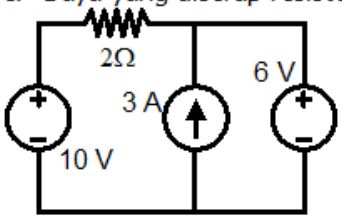
Mengirim :

$P = VI$

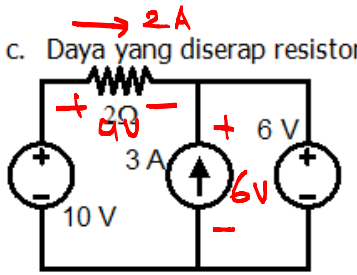
$P = 13 \times 1 = 13W$

13

c. Daya yang diserap resistor 2 Ohm



c. Daya yang diserap resistor 2 Ohm

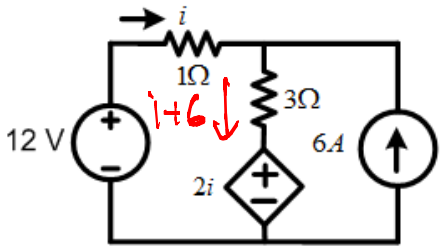


$P = VI$

$= 4 \times 2$

$= 8\ W$

1. Tentukan nilai daya yang diterima dan dikirim pada masing-masing elemen pada rangkaian berikut :



Elemen	Daya Kirim	Daya Terima
12 V	−12	−12
1 Ω	−1	1
3 Ω	−75	75
2i	10	−10
6 A	78	−78
Σ	0	0

$\Sigma V = 0$

$-12 + i + 3(i+6) + 2i = 0$

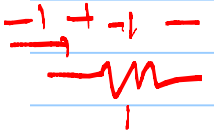
$-12 + i + 3i + 18 + 2i = 0$

$6 + 6i = 0$

$i = -1A$

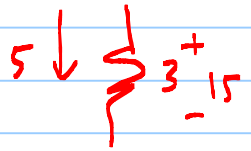
Mengirim

$P = V \cdot I = 12 \times (-1) = -12W$



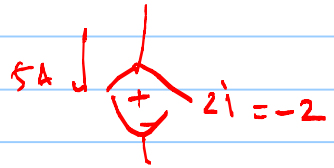
Menyerap

$P = V \cdot I = (1) \times (-1) = 1W$



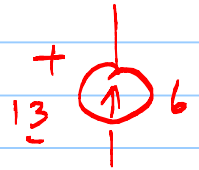
Menyerap

$P = VI = 15 \times 5 = 75W$



Menyerap

$P = VI = -2 \times 5 = -10W$

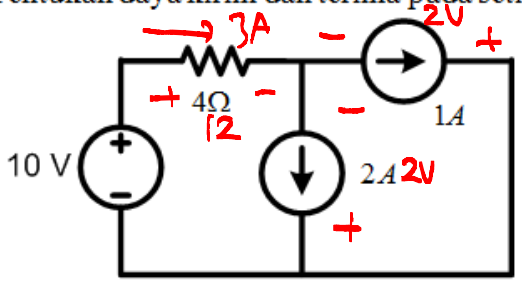


Mengirim

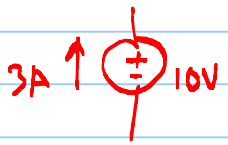
$P = VI = 13 \times 6 = 78W$

15

b. Tentukan daya kirim dan terima pada setiap komponen

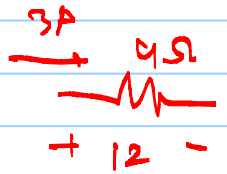


Komponen	Daya kirim	Daya terima
10 V	30	-30
4 Ohm	-36	36
2 A	4	-4
1 A	2	-2
Σ	0	0



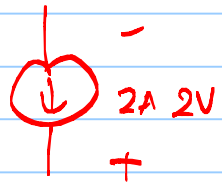
Mengirim

$P = VI = 10 \times 3 = 30\ W$



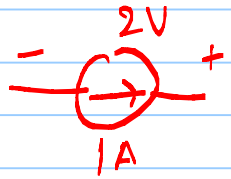
Menyerap

$P = VI = 12 \times 3 = 36\ W$



Mengirim

$P = VI = 2 \times 2 = 4\ W$

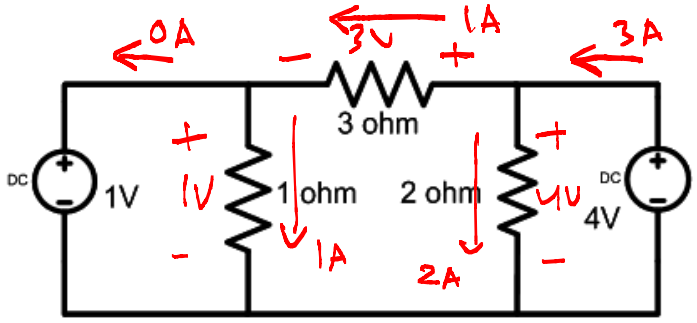


Mengirim

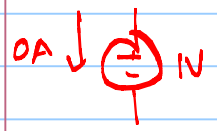
$P = VI = 2 \times 1 = 2\ W$

16

1. Tentukan nilai daya yang diterima dan dikirim pada masing-masing elemen :

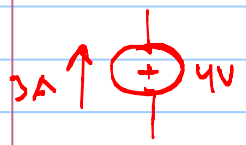


Elemen	Daya Terima	Daya Kirim
1 V	0	0
4 V	−12	12
1 Ohm	1	−1
2 Ohm	8	−8
3 Ohm	3	−3
Σ	0	0



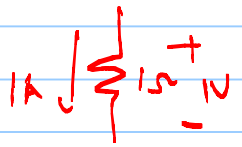
Menyerap

$P = VI = 1.0 = 0\,W$



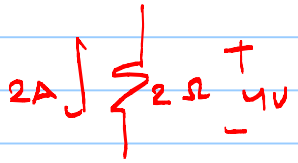
Mengirim

$P = VI = 4 \times 3 = 12\,W$



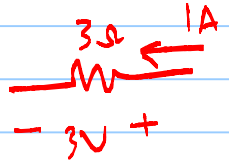
Menyerap

$P = VI = 1.1 = 1\,W$



Menyerap

$P = VI = 4 \times 2 = 8\,W$

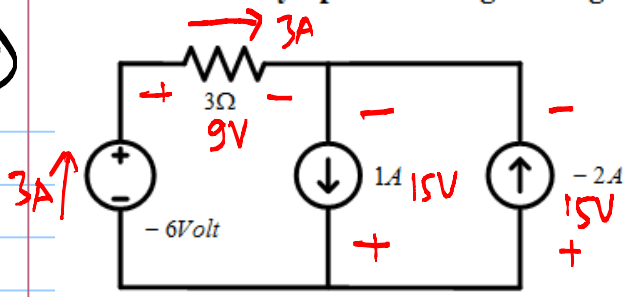


Menyerap

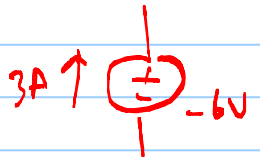
$P = VI = 3 \times 1 = 3\,W$

(17)

1. Tentukan **daya pada masing-masing elemen** ! (mm)



Elemen	*Menyerap*	*Mengirim*
-6 Volt	18	-18
3 Ω	27	-27
1 A	-15	15
-2 A	-30	30
Σ	0	0

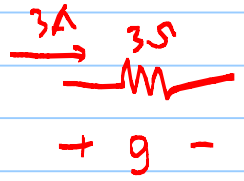


Mengirim

$P = V \cdot I = -6 \times 3 = -18\ W$

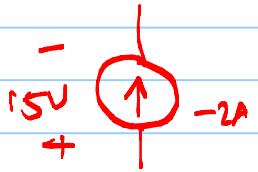
Mengirim

$P = VI = 15 \times 1 = 15W$



Menyerap

$P = VI = 9 \times 3 = 27W$

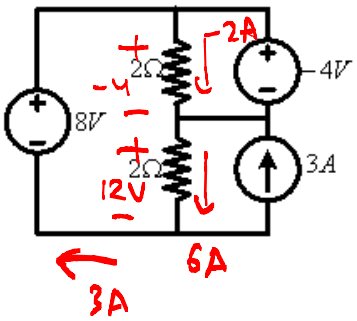


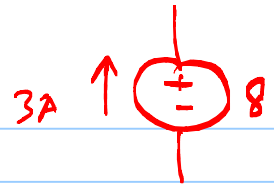
Menyerap

$P = VI = 15 \times (-2) = -30$

18

1. Tentukan daya yang ***diserap*** oleh sumber tegangan 8 V = ...





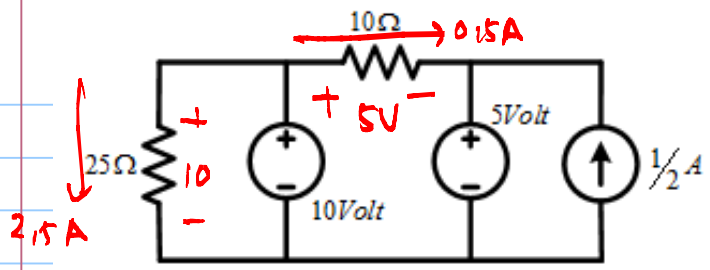
Mengirim

$P = VI = 8 \times 3 = 24\ W$

Menyerap $P = -24W$

19

Tentukan **daya yang dikirimkan** oleh resistor 10 Ω !

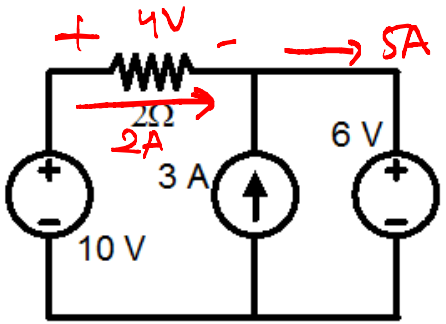


Menyerap

$P = VI = 5 \times 0{,}5 = 2{,}5\,W$

Mengirim $P = -2{,}5\,W$

26. Tentukan daya yang diserap oleh sumber tegangan 6 V = ...

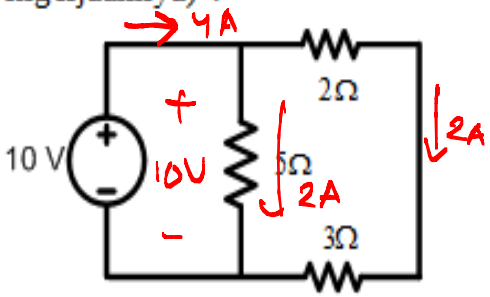


Menyerap

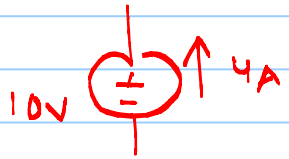
$P = VI = 6 \times 5 = 30\,W$

21

Hitung daya pada masing-masing elemen rangkaian berikut dan lengkapi tabel (disertai dengan cara pengerjaannya) !

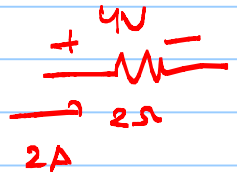


Elemen	Daya dikirim	Daya diterima
10 V	40	−40
5 Ω	−20	20
2 Ω	−8	8
3 Ω	−12	12
Σ	0	0



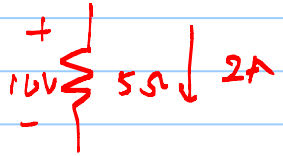
Mengirim

$P = VI = 10 \times 4 = 40\,W$



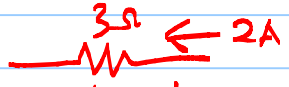
Menyerap

$P = VI = 4 \times 2 = 8\,W$



Menyerap

$P = VI = 10.2 = 20W$



Menyerap

$P = VI = 6 \times 2 = 12W$