

M R

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مدرس خصوصي

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محصل الطالب علي

مقاطع فيديو هات لشرح المقرر بشكل وافى

ملخص للمادة Pdf للمذكرة واطراجة

محاضرات مباشرة علي برنامج زووم

مناقشة الأجزاء الغير مفهومة

تواصل مستمر مع معلم المادة

للتواصل

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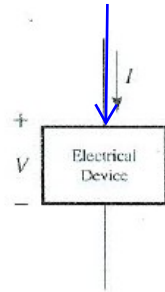
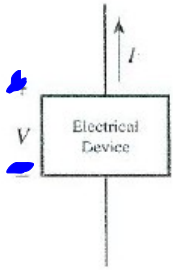
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استاتيكا	فيزياء
الكترونيا	دوائر كهربية
هيدروليكا	ميكانيكا الانشآت



1-4 Power and Energy

القدرة والطاقة



Power delivered

Power dissipated

Energy

$$W = P t$$

kw h

EXAMPLE 1-7

Assume that a family leaves a 60-W light bulb on for the duration of a two-week trip. If electricity costs 8 cents per kilowatt-hour, determine the cost incurred.

$$P = 60 \text{ W} = \frac{60}{1000} \text{ kW}$$

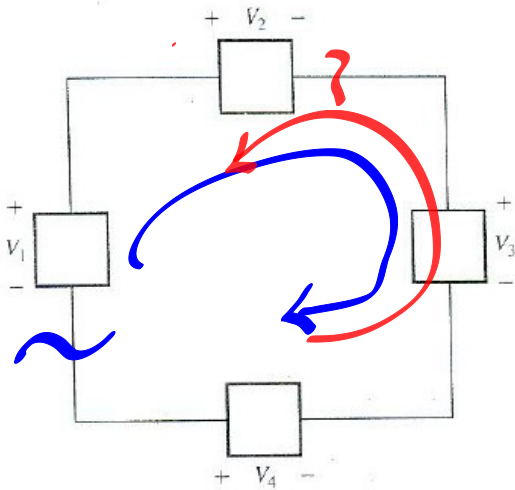
$$t = 14 * 24 \text{ h}$$

$$W = P t = \frac{60}{1000} * 14 * 24 = 20.16 \text{ kWh}$$

$$C = 20.16 * 8 = 161.28 \text{ C} = 1.6128 \text{ \$}$$

1-5 Kirchoff's Laws

Kirchoff's voltage law (KVL)

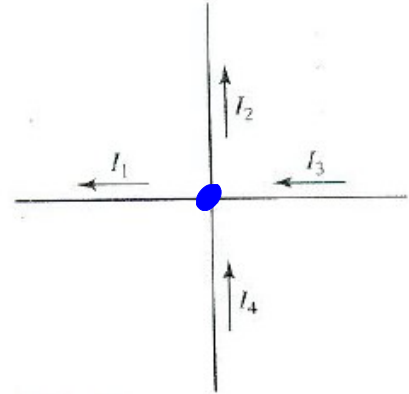


$$\sum V = 0$$

$$-V_1 + V_3 + V_4 - V_2 = 0$$

$$+V_2 - V_1 - V_4 + V_3 = 0$$

Kirchoff's current law (KCL)



$$\sum I = 0$$

$$I_1 + I_2 - I_3 - I_4 = 0$$

$$-I_1 - I_2 + I_3 + I_4 = 0$$

EXAMPLE 1-8

For the circuit of Figure 1-17, determine the value of the voltage V_x .

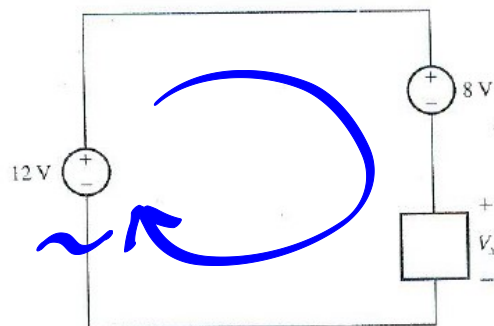
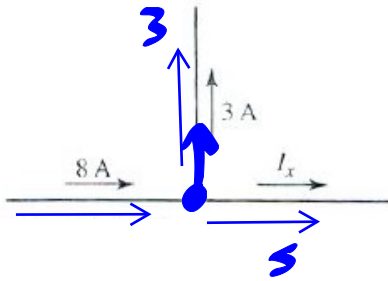


FIGURE 1-17
Circuit of Example 1-8.

$$-12 + 8 + V_x = 0 \Rightarrow V_x = 4V$$

For the circuit of Figure 1-18, determine the value of the current I_x .

EXAMPLE 1-9



$$-8 + 3 + I_x = 0$$

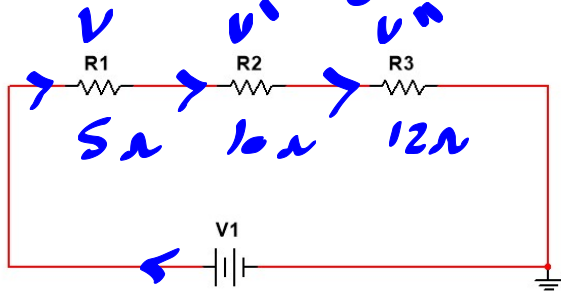
$$I_x = 5 \text{ A}$$

المقاومة المكافئة

1-6 Equivalent Resistance



* SERIES السوالى



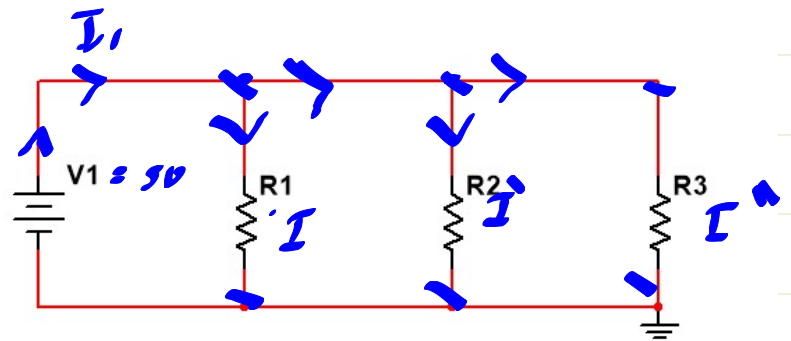
$$R_{eq} = R_1 + R_2 + R_3$$

$$R_{eq} = 27 \Omega$$

التيار ثابت

$$V_s = V + V' + V''$$

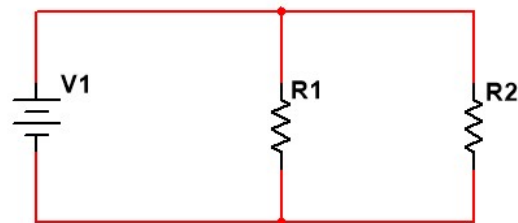
PARALLEL التوازي



$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

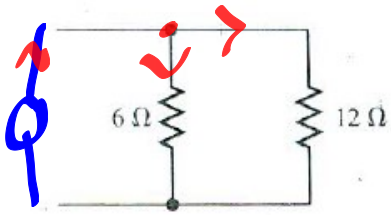
الطه ثابت

$$I_s = I + I' + I''$$

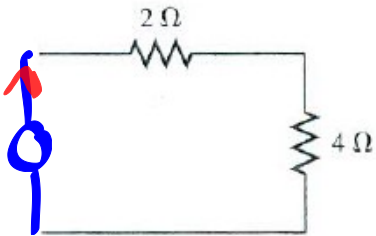


$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$$

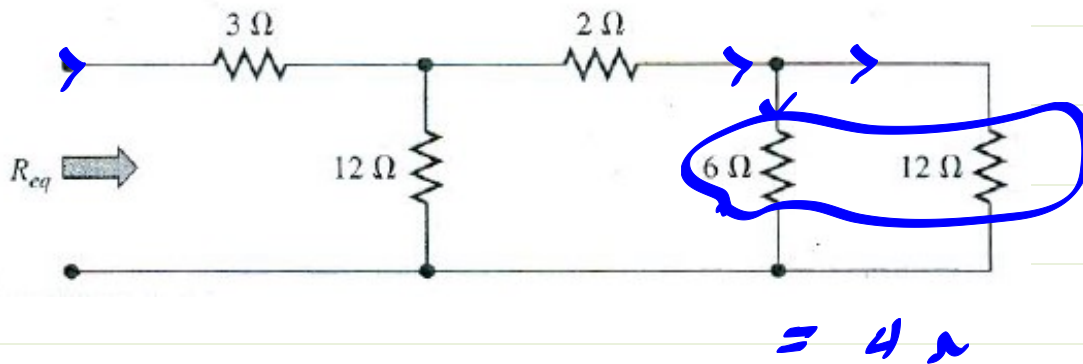
$$R_{eq} = \frac{R_1 \times R_2}{R_1 + R_2}$$



$$R_{eq} = \frac{6+12}{6+12} = 4 \Omega$$

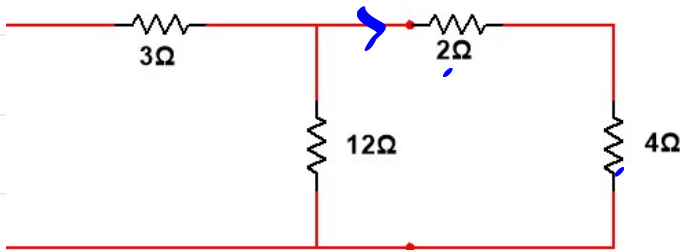


$$R_{eq} = 2 + 4 = 6 \Omega$$

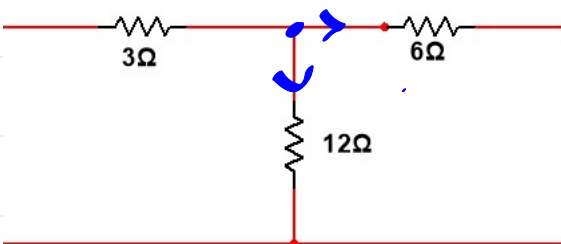


$$R_{eq} = 7 \Omega$$

$$= 4 \Omega$$



$$6 \Omega$$



$$\frac{6+12}{6+12} = 4 \Omega$$



$$\underline{7 \Omega}$$