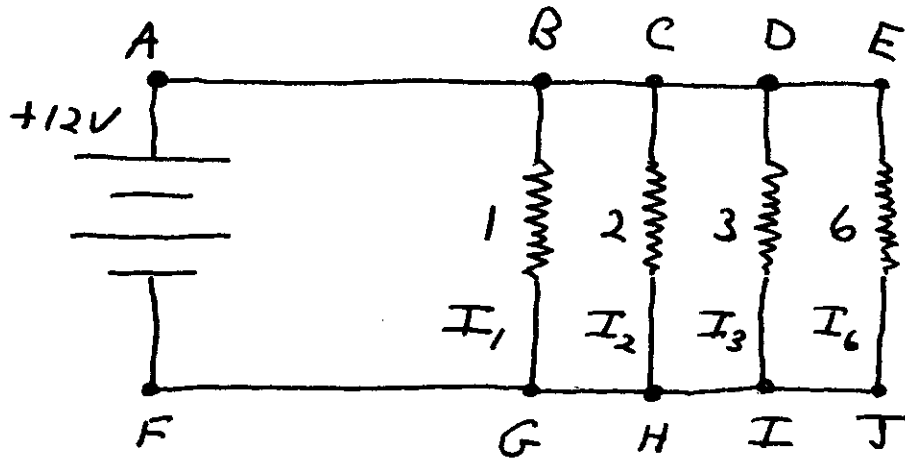


Name

Answer

20080331-0815

R is in ohms



R_T	$.5 \Omega$
A	$12V$
B	$12V$
C	$12V$
D	$12V$
E	$12V$
F	$0V$
G	$0V$
H	$0V$
I	$0V$
J	$0V$
I_1	$12a$
I_2	$6a$
I_3	$4a$
I_6	$2a$

Find R_{TOTAL} , Voltage at each point and I through each resistor.

These are parallel so

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4}$$

$$\frac{1}{R_T} = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$$

$$\frac{1}{R_T} = \frac{6}{6} + \frac{3}{6} + \frac{2}{6} + \frac{1}{6}$$

$$\frac{1}{R_T} = \frac{12}{6} = 2$$

$$R_T = \frac{1}{2} \text{ or } .5$$

$$E = IR_1$$

$$I_1 = \frac{E}{R_1} = \frac{12}{1} = 12a$$

$$E = IR_2$$

$$I_2 = \frac{E}{R_2} = \frac{12}{2} = 6a$$

$$I_3 = \frac{E}{R_3} = \frac{12}{3} = 4a$$

$$I_4 = \frac{E}{R_4} = \frac{12}{6} = 2a$$

$$I_T = 12 + 6 + 4 + 2 = 24 \text{ amp}$$

agrees with

$$E = IR$$

$$I = \frac{E}{R_T}$$

$$I = \frac{12V}{.5\Omega} = 24 \text{ amp}$$