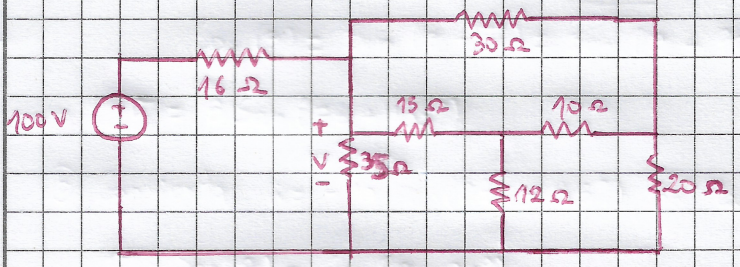
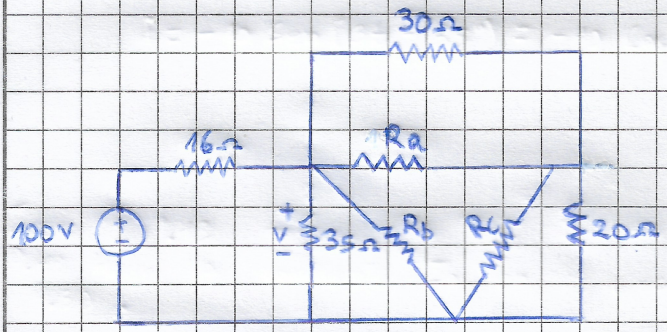
Ejercicio 2.56 Fundamentos de Circuitos - Charles K. Andrew.

2.56 Determine V en el circuito de la figura 2.120.





$$R_a = \frac{(15)(10) + (12)(10) + (15)(12)}{12}$$

$$R_a = 37.5\ \Omega$$

$$R_b = \frac{(15)(10) + (12)(10) + (15)(12)}{10}$$

$$R_b = 45\ \Omega$$

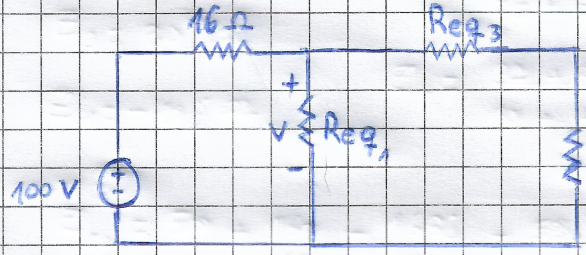
$$R_c = \frac{(15)(10) + (15)(12) + (10)(12)}{15}$$

$$R_c = 30\ \Omega$$

$$R_{eq1} = \frac{(35)(45)}{35 + 45} = \frac{315}{16}\ \Omega$$

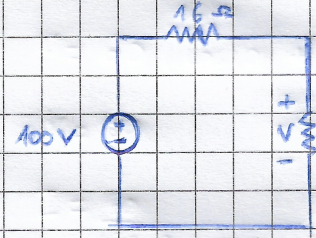
$$R_{eq2} = \frac{(30)(20)}{30 + 20} = 12$$

$$R_{eq3} = \frac{(37.5)(30)}{37.5 + 30} = \frac{50}{3}\ \Omega$$



$$R_{eq4} = R_{eq3} + R_{eq2} = \frac{86}{3}\ \Omega$$

$$R_{eq5} = \frac{R_{eq4}\, R_{eq1}}{R_{eq4} + R_{eq1}} = 11.7$$



$$R_{eq} = 16 + 11.7 = 27.7\ \Omega$$

$$I = \frac{100}{27.7} = 3.61\ [A]$$

$$V = (11.7)(3.61) = 42.24\ [V]$$