LABORATÓRIO ELETRICIDADE II
LISTA EXERCÍCIOS 2
ASSOCIAÇÃO E LEITURA DE RESISTORES
JORGE NAMI HARBES - SIST. DE INFORMAÇÃO

1 -
a)
$R_{eq} = R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7$

$R_{eq} = 47 + 560 + 220 + 180 + 100 + 330 + 470$

$R_{eq} = 1907 \, \Omega = 1.407 \, k\Omega$

b) $\dfrac{1}{R_{eq}} = \dfrac{1}{R_8} + \dfrac{1}{R_9} + \dfrac{1}{R_{10}} + \dfrac{1}{R_{11}}$

$\dfrac{1}{R_{eq}} = \dfrac{1}{100} + \dfrac{1}{100} + \dfrac{1}{33} + \dfrac{1}{100} = \dfrac{3}{100} + \dfrac{1}{33}$

$\dfrac{1}{R_{eq}} = \dfrac{99 + 100}{3300} = \dfrac{199}{3300} \Rightarrow R_{eq} = \dfrac{3300}{199}$

$R_{eq} \approx 16,58 \, \Omega$

c)

$$R_{ey} = R_{12} + R_x$$

$$\frac{1}{R_x} = \frac{1}{R_{13}} + \frac{1}{R_{14}} + \frac{1}{R_{15}} = \frac{1}{100} + \frac{1}{33} + \frac{1}{220}$$

$$\frac{1}{R_x} = \frac{33 + 100}{3300} + \frac{1}{220} = \frac{133}{3300} + \frac{1}{220}$$

$$\frac{1}{R_x} = \frac{29260 + 3300}{726000} \Rightarrow R_x = \frac{726000}{32560}$$

$$R_x \approx 22,30 \ \Omega$$

$$R_{ey} = 100 + 22,30 \approx 122,30 \ \Omega$$

d) $R_{ey} = R_{20} + R_x$

$$\frac{1}{R_x} = \frac{1}{R_{19}} + \frac{1}{R_{18}} + \frac{1}{R_{17}} + \frac{1}{R_{16}}$$

$$\frac{1}{R_x} = \frac{1}{100} + \frac{1}{33} + \frac{1}{100} + \frac{1}{100} = \frac{3}{100} + \frac{1}{33} = \frac{99 + 100}{3300}$$

$$R_x = \frac{3300}{199} = 16,58 \ \Omega$$

$$R_{eg} = R_{20} + R_x = 22 + 16,58 \approx 38,58 \ \Omega$$