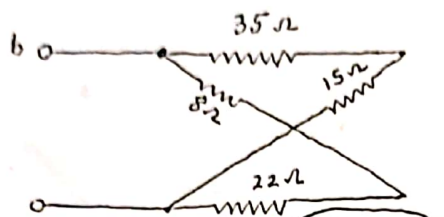


Fundamentals of resistive circuits

Tutorial - 1

(Series parallel combination & Δ -Y transformation)

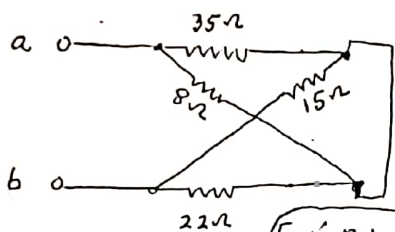
P1.1: Determine the equivalent resistance between points ab in the circuit of Fig. P.1.1. All resistances are in ohms



[18.75 Ω]

Fig. P.1.1

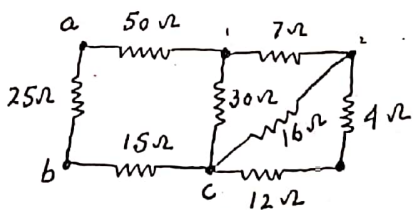
P1.2: Find the equivalent resistance between terminals ab for the Fig. P.1.2. All resistances are in ohms.



[15.43 Ω]

Fig. P.1.2

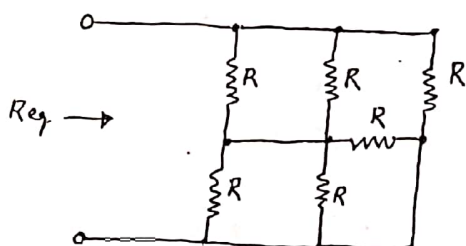
P1.3 An ohmmeter is an instrument that gives a value of the resistance seen between its ^{two} terminals. What is the correct reading if the instrument is attached to the network of Fig. P.1.3 at points: (a) ab; (b) ac; (c) bc?



[18.75 Ω
24 Ω
12.75 Ω]

Fig. P.1.3

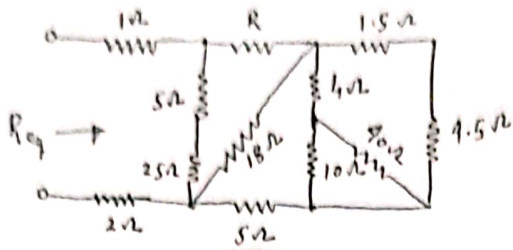
P1.4 Find R_{eq} for the resistive network shown in Fig. P.1.4



[22.73 Ω]

$R = 50\Omega$

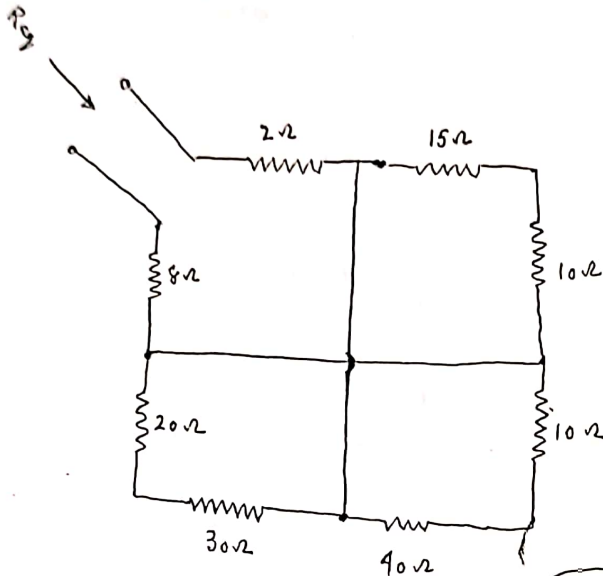
For the network of Fig P1.5 (a) find R_{eq} if $R = 14 \Omega$, (b) find R if $R_{eq} = 14 \Omega$



[15 Ω
11.368 Ω]

Fig P1.5

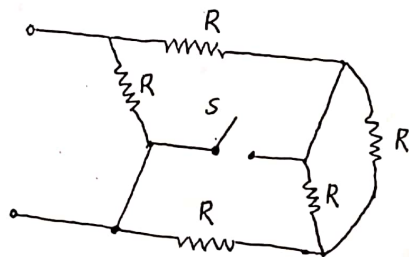
P1.6 Find R_{eq} for the network shown in Fig P1.6



[22.5 Ω]

Fig P1.6

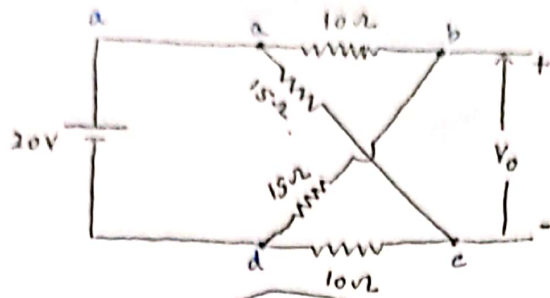
P1.7 What resistance is measured at the terminals of the network in Fig P1.7 if switch S is: (a) open; (b) closed; (c) replaced by a 10-mS conductance?



$R = 100 \Omega$

Fig P1.7

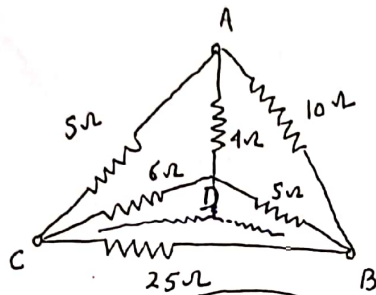
[71.43 Ω
50 Ω
61.54 Ω]



[4V]

Fig P1.8

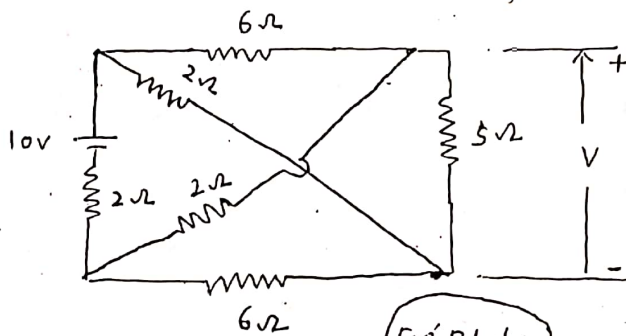
P1.9 → For the circuit shown in Fig P1.9 find the equivalent resistance between (a) A and B (b) A and D



[4Ω
2.444Ω]

Fig P1.9

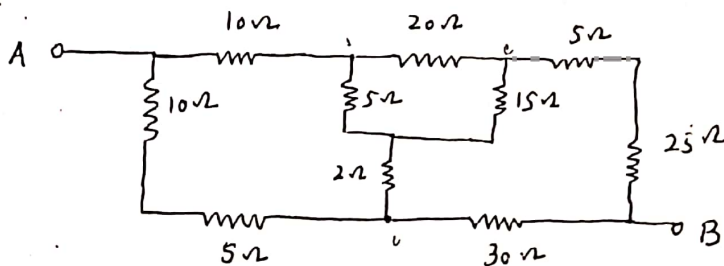
P1.10 → Find V for the circuit of Fig P1.10



[-2V]

Fig P1.10

P1.11 → Find the resistance between the points A and B of the network shown in Fig P1.11



[23.5Ω]

Fig P1.11

Find the equivalent Π circuit for the bridged circuit shown in Fig P1.12

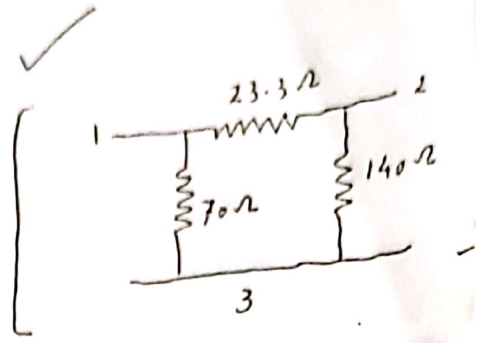
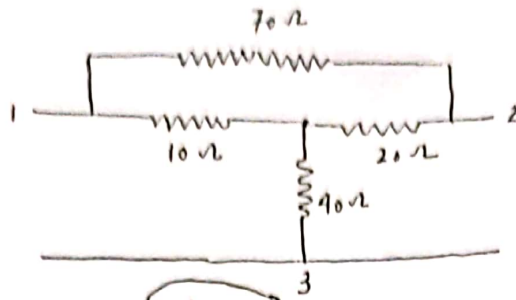
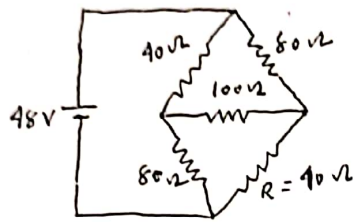
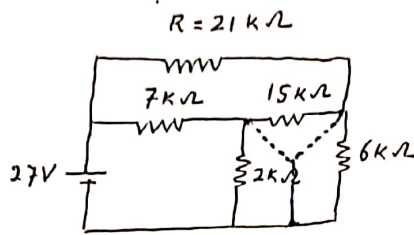


Fig P1.12

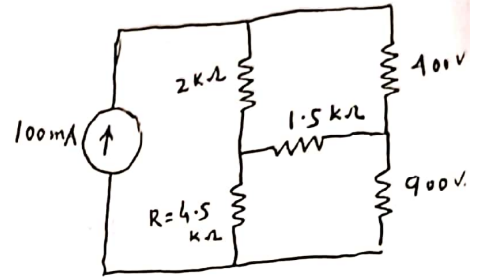
P1.13 Determine which of the bridges shown in Fig P1.13 are balanced. In those that are balanced, find the current in resistor R.



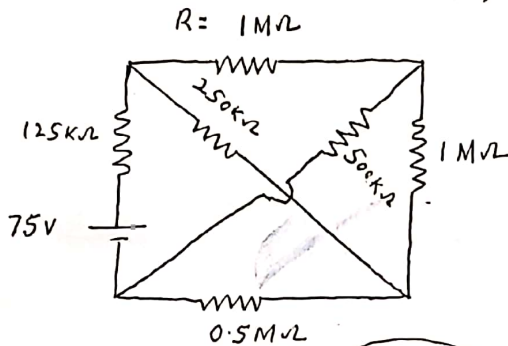
(a)



(b)



(c)



(d)

not balanced
1 mA
1.67 mA
not balanced

Fig P.13

P1.14 Find the total current drawn from the 48V supply in the circuit of Fig P1.14 and the voltage across 40Ω resistor [0.6A, 14.4V]

P.15 Find the value of R and the current flowing through it in the network of Fig P1.15 when the current is zero through branch [6Ω, 0.5A]

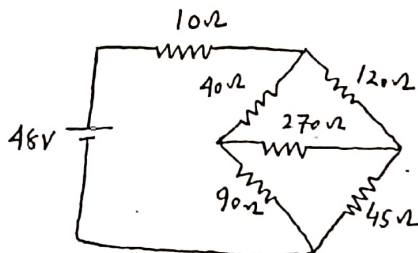


Fig P.14

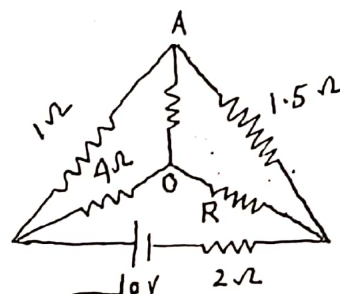


Fig P.15