

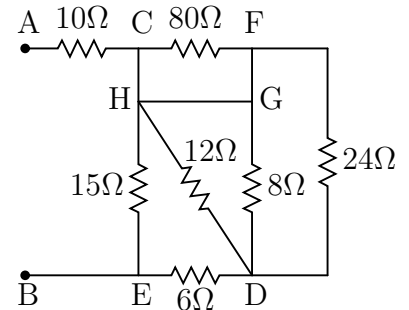
# 332:221 Principles of Electrical Engineering I – Fall 2004

## Quiz 2

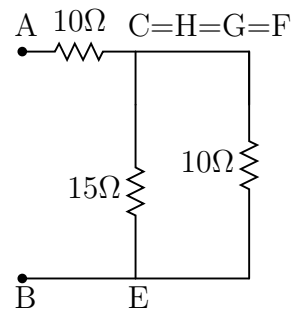
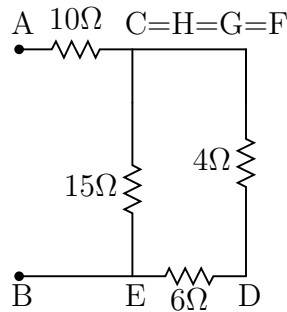
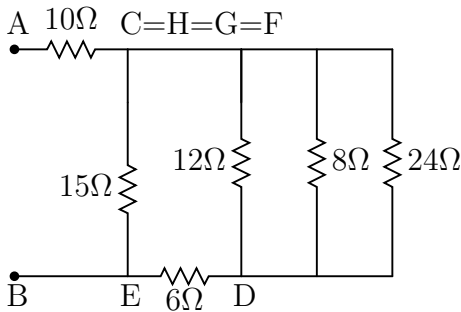
Student's name in capital letters:

The following is the solution for one version of the quiz. The other version is similar.

Consider the circuit shown on the right. Determine the equivalent resistance between the terminals A and B.



The  $80\Omega$  resistance is in parallel with a  $0\Omega$  resistance, and their equivalent resistance is  $0\Omega$ . This lets us observe that the  $12\Omega$ ,  $8\Omega$ , and  $24\Omega$  resistances are in parallel. Once the equivalent of these resistances (namely  $4\Omega$  is computed), that resistance is in series with the  $6\Omega$  resistance. The equivalent of  $4\Omega$  and  $6\Omega$  resistances in series is  $10\Omega$  and such an equivalent is in parallel with  $15\Omega$  resistance; the equivalent of all of these connections between C and E is  $6\Omega$ . It obvious now that the resistance between the terminals A and B is  $16\Omega$ .



If the current in the  $10\Omega$  resistance from A to C is known to be  $1.0\text{ A}$ , what is the current in the  $6\Omega$  resistance from D to E?

By utilizing the current division rule in the last circuit shown, we clearly see that the current in  $6\Omega$  resistance from D to E is  $0.6\text{ A}$ .