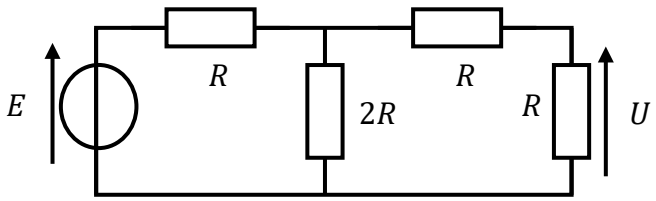
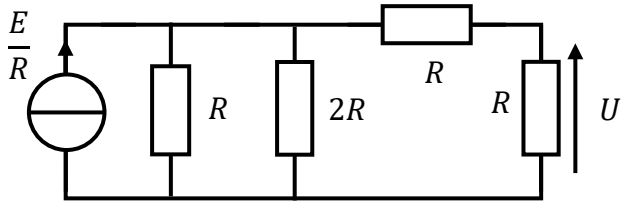
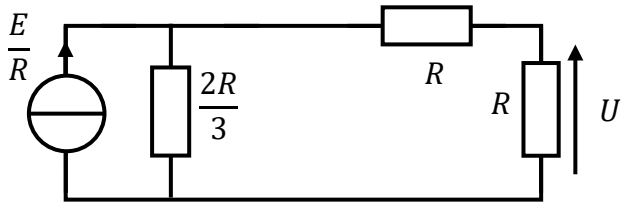
TD 2 : Equivalences Thévenin/Norton
CORRIGE

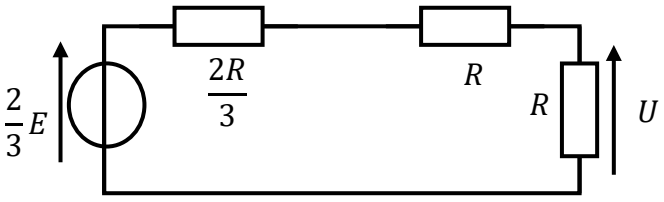
Pour chacun des montages suivants, déterminer l'expression de la tension U en utlisant les équivalences Thévenin/Norton.

1.





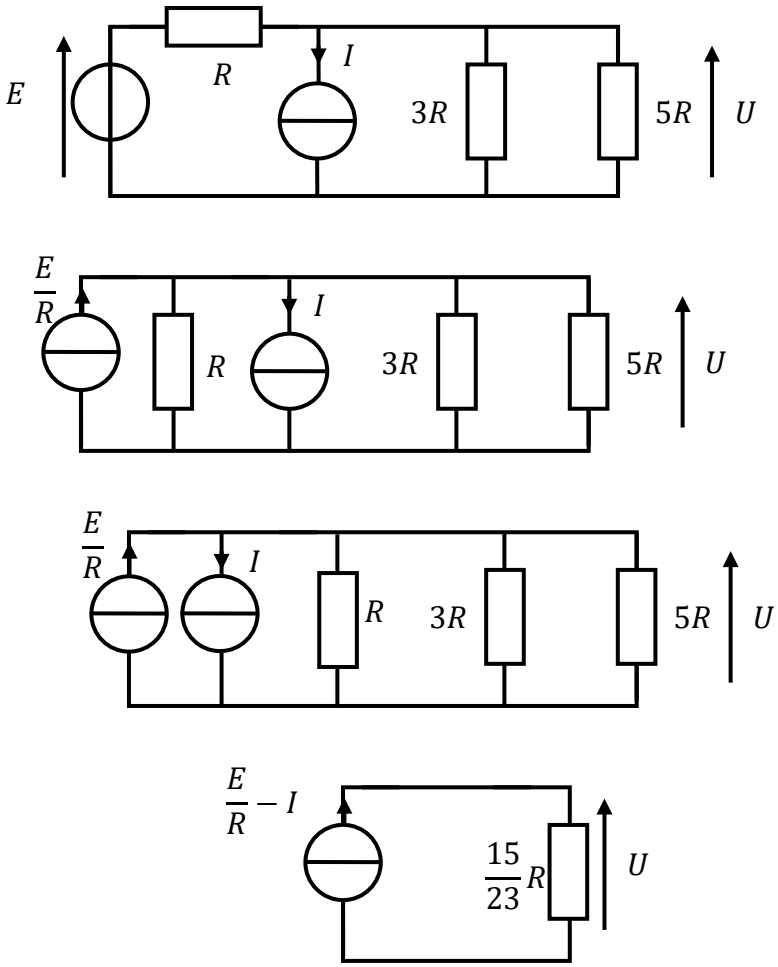




D'après la formule du pont diviseur de tension, on trouve :

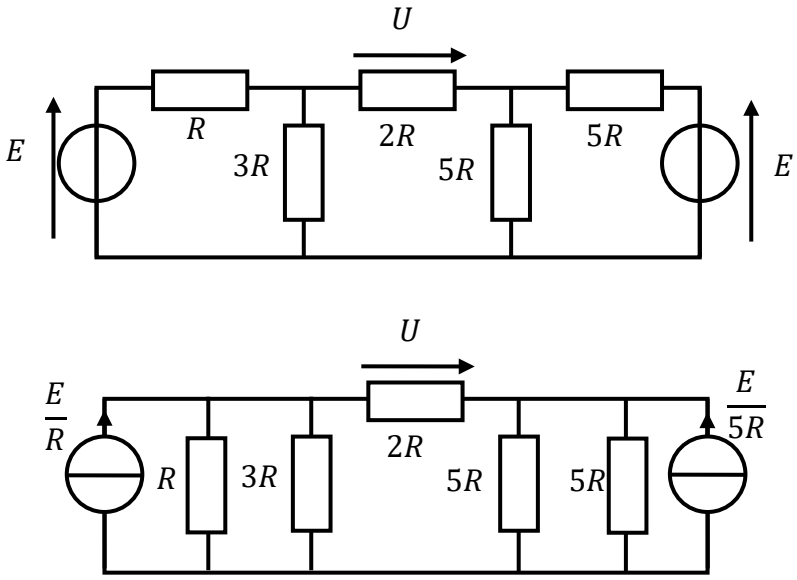
$$U = \frac{R}{\frac{2}{3}R + R + R} \times \frac{2}{3}E = \frac{2R}{2R + 3R + 3R} \times E = \frac{E}{4}$$

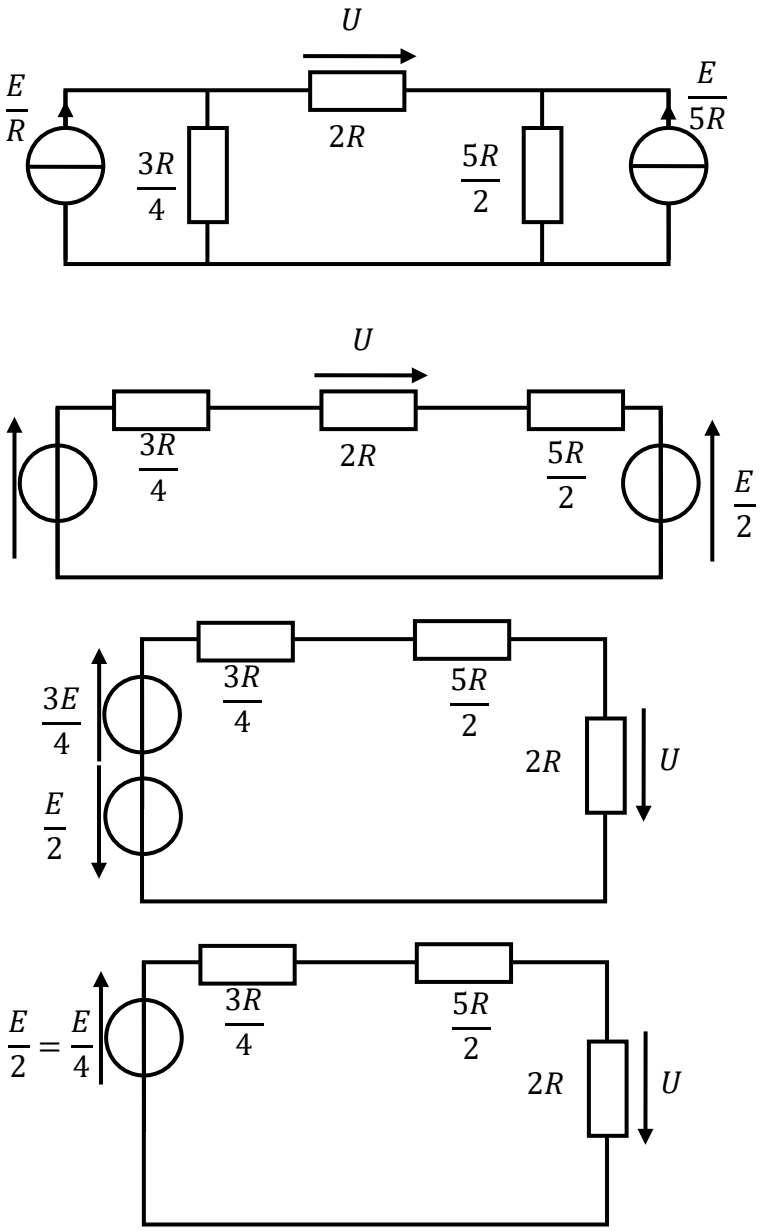
2.



D'après la loi d'Ohm, on a : $U = \frac{15}{23}(E - RI)$

3.

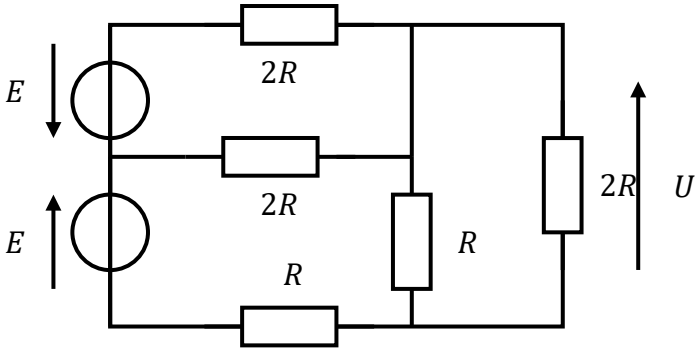


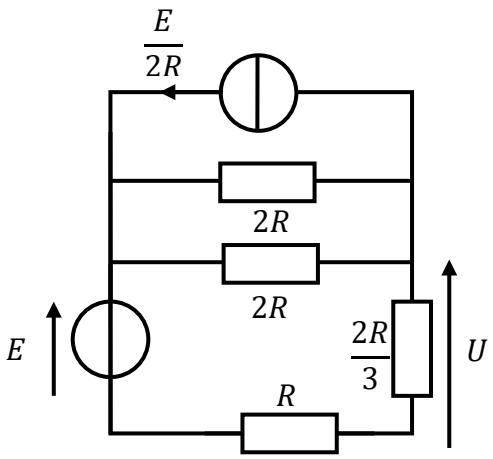


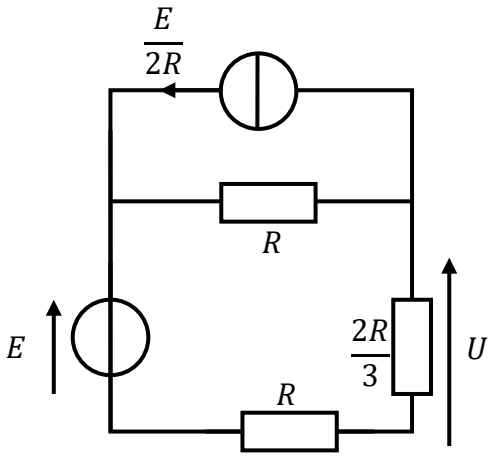
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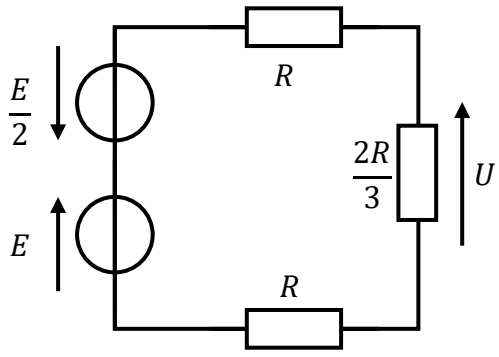
$$U = -\frac{2R}{\frac{3R}{4} + \frac{5R}{2} + 2R} \times \frac{E}{4} = -\frac{2}{21} \times E$$

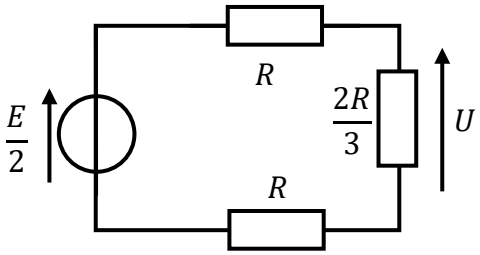
4.







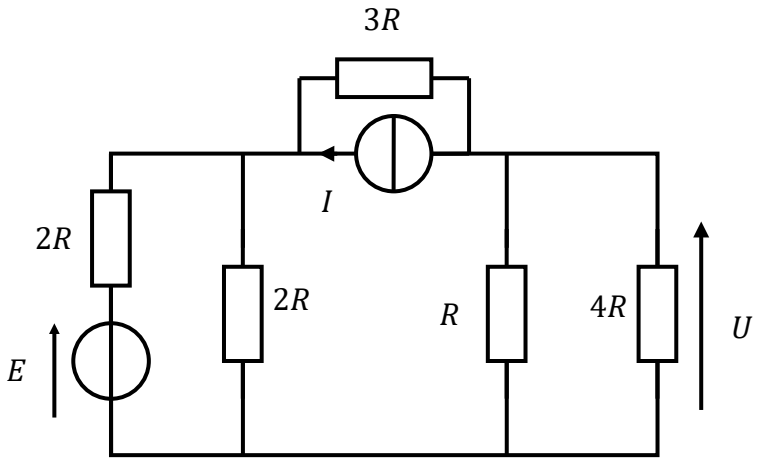


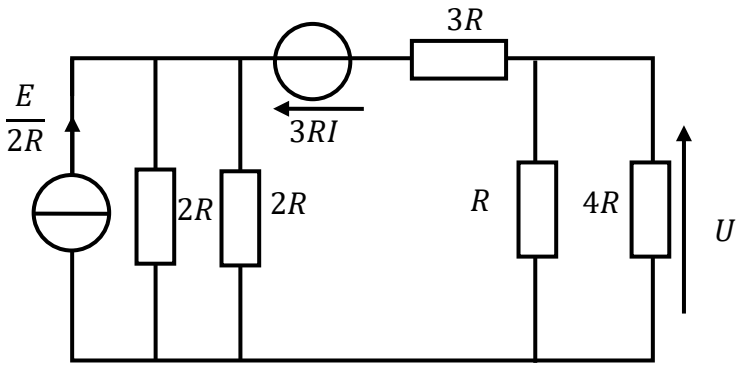


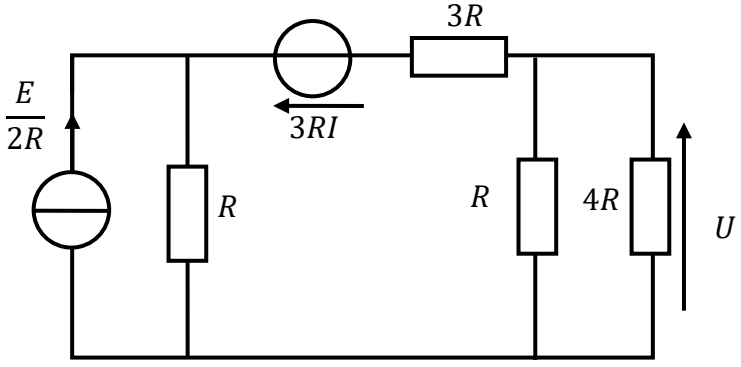
D'après la formule du pont diviseur de tension, on trouve :

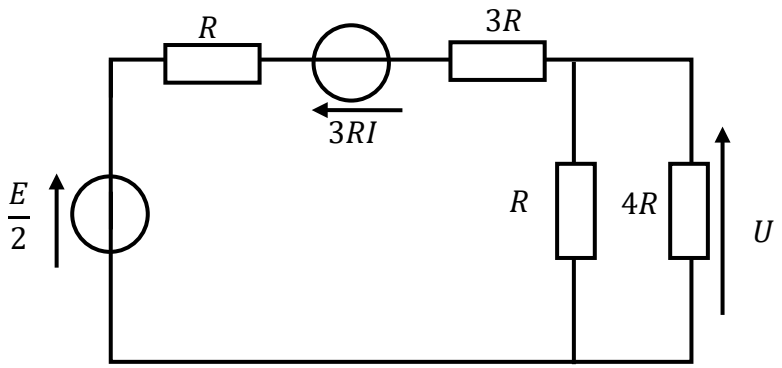
$$U = \frac{\frac{2R}{3}}{R + \frac{2R}{3} + R} \times \frac{E}{2} = \frac{E}{8}$$

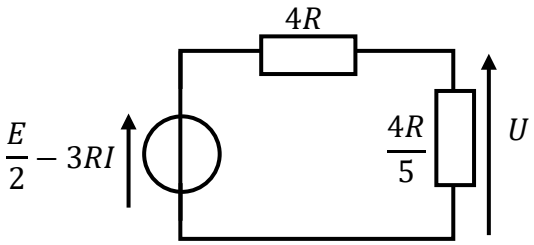
5.







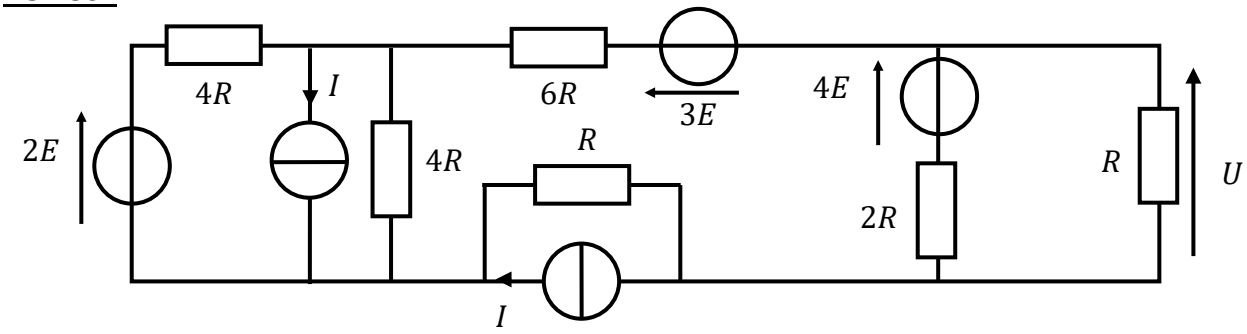


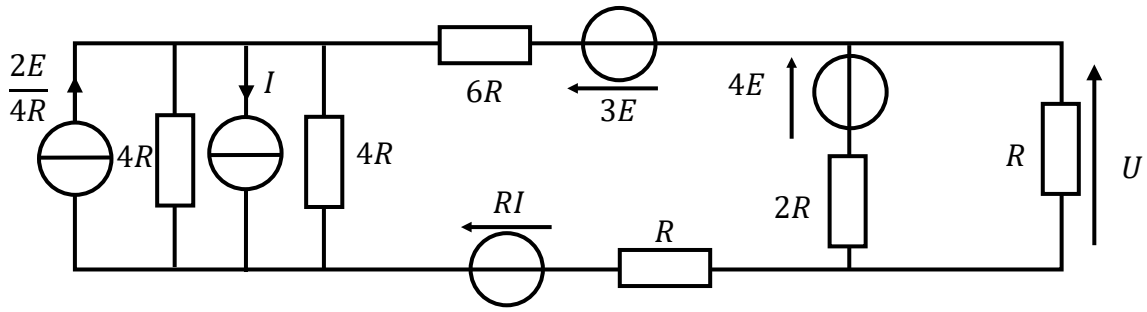


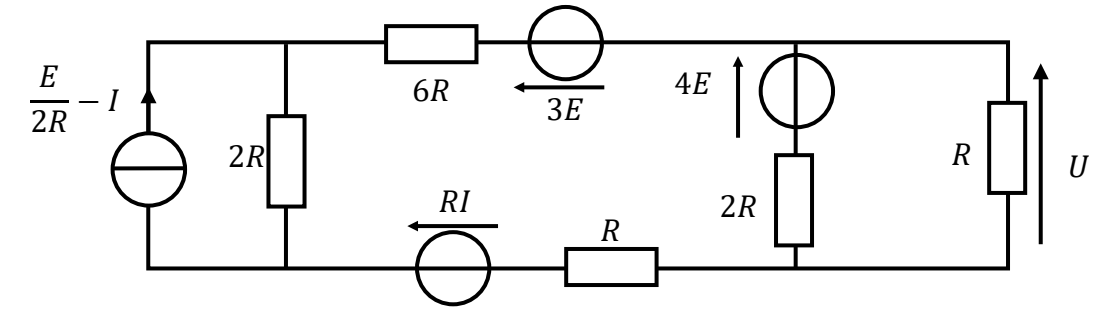
D'après la formule du pont diviseur de tension, on trouve :

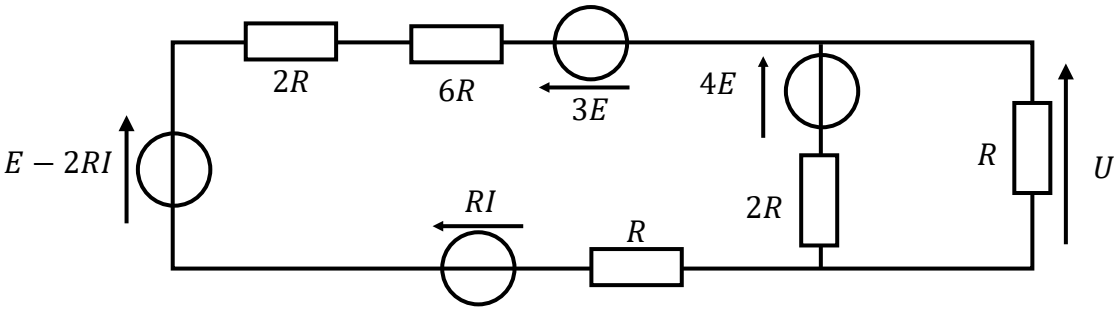
$$U = \frac{\frac{4R}{5}}{4R + \frac{4R}{5}} \times \left(\frac{E}{2} - 3RI\right) = \frac{1}{6} \times \left(\frac{E}{2} - 3RI\right)$$

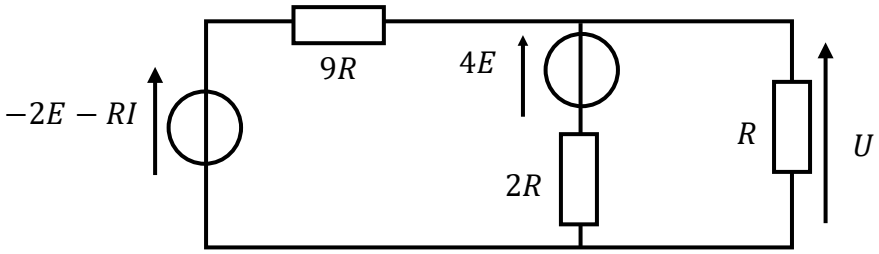
BONUS :

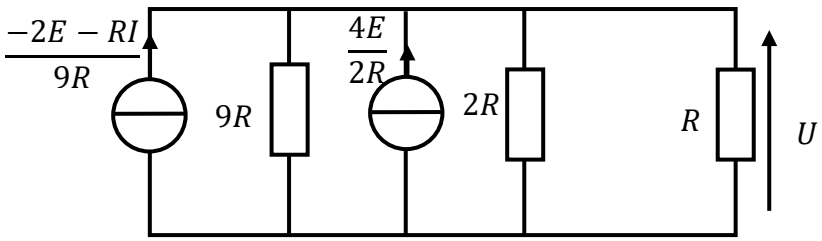


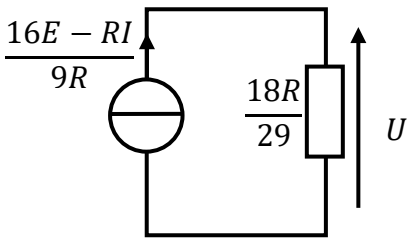












D'après la loi d'Ohm, on a :

$$U = \frac{18R}{29}\left(\frac{16E - RI}{9R}\right) = \frac{32E - 2RI}{29}$$