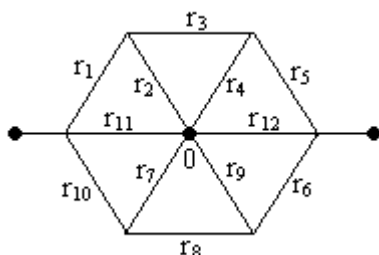
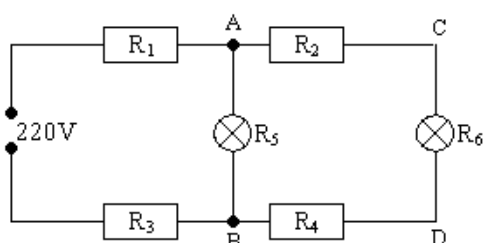


1. Find full resistance of conductors, linked up in hexagonal form. The resistance of each wire is equal to r .



8 points

2. Find voltage in the clamps of the bulbs AB and CD. $R_1=R_2=R_3=R_4=4 \Omega$, $R_5=R_6=10 \Omega$.



11 points

3. Lifebuoy, which volume is $21.2 \cdot 10^{-3} \text{ m}^3$, keeps a person whose weight is 712 N on the water so that 0.1 of the total volume of the person is above the water. The lifebuoy is totally under the water. The average density of a person is $1.2 \cdot 10^3 \text{ kg/m}^3$. What is the average density of the material the lifebuoy is made from?

9 points

4. Temperature of the water in a hermetic disk is 0°C . Piece of an ice which mass is 100 g with a frozen in leaden ball which mass is 5 g is floating in this hermetic disk. What amount of heat you should give to the ice in order it would fully dip into the water? The density of lead is $11,3 \cdot 10^3 \text{ kg/m}^3$, ice – 900 kg/m^3 , water – 10^3 kg/m^3 , ice specific melting heat $\lambda = 3,3 \cdot 10^5 \text{ J/kg}$.

12 points