RJESENJA ZADATAKA ZA DEVETE RAZREDE

1) Q1 = -5 μC
Q2 = 10 μC
Q3= 6 μC
R1= R2 = $d/2$ =5cm

a) $F_{12} = k \cdot \frac{Q1Q2}{R1^2}$ - privlačna sila

$F_{13} = k \frac{Q1Q3}{R2^2}$ – privlačna sila

F_{12} i F_{13} imaju isti pravac a suprotan smjer pa je $F= F_{12} – F_{13}$

F= 36 N

b) $F_{12} = k \cdot \frac{Q1Q2}{R1^2}$ - privlačna sila

$F_{13} = k \frac{Q1Q3}{R2^2}$ – odbojna sila

F_{12} i F_{13} imaju isti pravac a suprotan smjer pa je $F= F_{12} – F_{13}$

F= 252 N

2) l =100m
S=0,5 mm^2
$\rho_č$=0,15 Ωmm^2/m
ρ_{Al}=0,032 Ωmm^2/m

Pletenica je spoj otpora u paralelu → $\frac{1}{R} = \frac{3}{Rč} + \frac{20}{Ral}$

Rč = $\rho_č \frac{l}{s}$ = 30 Ω

Ral = $\rho_{Al} \frac{l}{s}$ = 6,4 Ω

R = 0,32 Ω

3) a=40cm
b=30cm
d=4mm
U=200V

$q = CU = \varepsilon_0 \varepsilon_r \frac{ab}{d} U = 3{,}186\ 10^{-7}$ C

$C = \varepsilon_0 \varepsilon_r \frac{s}{d} = \varepsilon_0 \varepsilon_r \frac{ab}{d}$

s= ab

4) r = 50cm
I1 =10A
I2= 15 A
$\mu_0 = 4\pi \cdot 10^{-7}\ Tm/A$

a) $B = B_2 - B_1 = \mu_0 \cdot H_2 - \mu_0 \cdot H_1$

$$B = \mu_0 \frac{I_2}{\frac{2r\pi}{2}} - \mu_0 \frac{I_1}{\frac{2r\pi}{2}}$$

$B = 40\ 10^{-7}\ T = 4\ \mu T$

b) $B = B_2 + B_1$

$$B = \mu_0 \frac{I_2}{\frac{2r\pi}{2}} + \mu_0 \frac{I_1}{\frac{2r\pi}{2}}$$

$B = 200\ 10^{-7}\ T = 20\ \mu T$

5) R = 3 Ω
Φ_1 = 0,0002 Wb
Φ_2 = 0,0005 Wb

$\Delta q = I\Delta t \quad \Delta q = \frac{U}{R}\Delta t \quad U\ \Delta t = \Delta\Phi$

$$\Delta q = \frac{\Delta\Phi}{R} = \frac{\Phi 2 - \Phi 1}{\Delta t} = 10^{-4}\ C$$