

№1.  
Бер:  
 $R = 200 \Omega$ .  
 $R_x = ?$

шешуі

тізбектенген жағдайға:  $R_1 = R + R$ .

$$R_1 = 200 \Omega + 200 \Omega = 400 \Omega.$$

ікітті жағдайға  $R = 200 \Omega$ .

$$R_x = R_1 + R_2 = 400 \Omega + 200 \Omega = 600 \Omega.$$

жауабы:  $600 \Omega$ .

$$R = R_1 + R_2 + R_3 + \dots$$

№2

№3

Бер:

$$R = 2000 \Omega.$$

$$\eta = 90\% = 0.9.$$

$$U = 220 \text{ В}$$

$$t = 20 \text{ мин} = 1500 \text{ с}.$$

$$t_1 = 20^\circ \text{C}.$$

$$V_1 = 0.6 \text{ м} = 6 \cdot 10^{-3} \text{ м}^3$$

$$\rho(\text{мы}) = 1000 \text{ кг/м}^3$$

$$c = 4200 \text{ Дж/(кг} \cdot ^\circ \text{C)}.$$

$Q = ?$

шешуі

$$I = \frac{U}{R}$$

$$Q = cm(t_2 - t_1)$$

$$Q_1 = m \cdot I \cdot t$$

$$Q_2 = Q_1 \cdot (1 - \eta)$$

$$Q_3 = I^2 \cdot R \cdot t$$

$$Q = Q_1 - (Q_2 + Q_3)$$

$$I = \frac{220 \text{ В}}{2000 \Omega} = 0.11 \text{ А}$$

$$m = 1000 \text{ кг/м}^3 \cdot 6 \cdot 10^{-3} \text{ м}^3 = 6 \text{ кг}$$

$$Q_1 = 4200 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}} \cdot 6 \text{ кг} \cdot (20 - 20)^\circ \text{C} = 504000 \text{ Дж}.$$

$$Q_2 = 504000 \text{ Дж} \cdot (1 - 0.9) = 50400 \text{ Дж}.$$

$$504000 \text{ Дж} - 50400 \text{ Дж} = 453600 \text{ Дж}.$$

$$100800 \text{ Дж}.$$

$$Q_3 = I^2 \cdot R \cdot t = (0.11 \text{ А})^2 \cdot 2000 \Omega \cdot 1500 \text{ с} = 363000 \text{ Дж}.$$

$$2000 \Omega \cdot 1500 \text{ с} = 363000 \text{ Дж}.$$

$$Q = 504000 \text{ Дж} - (100800 \text{ Дж} + 363000 \text{ Дж}) = 40200 \text{ Дж}.$$

$$40200 \text{ Дж} = 4.02 \cdot 10^4 \text{ Дж}.$$

жауабы:  $40200 \text{ Дж} = 4.02 \cdot 10^4 \text{ Дж}$ .

№4

Бер:

$$h_1 = 30 \text{ мм} = 0.03 \text{ м}$$

$$h_2 = 60 \text{ мм} = 0.06 \text{ м}.$$

$$\rho_k = 2700 \text{ кг/м}^3$$

$$\rho_m = 900 \text{ кг/м}^3$$

№2.

Бер:

$$d_1 = 3,5 \text{ см} = 35 \text{ м}$$

$$L = 1,5 \text{ см} = 15 \text{ м}$$

D = ?

шеші:

$$D = \frac{f}{F}$$

$$\frac{f}{F} = \frac{1}{d} + \frac{1}{f}$$

$$\left( \frac{1}{F} = \frac{1}{35 \text{ м}} + \frac{1}{15 \text{ см}} \right)$$