

1. Zaganu

$$1) r = \frac{R}{\tan \delta} = 5\sqrt{3} \text{ cm} = 8,66 \text{ cm}$$

$$2) w_1 = \frac{v}{R} = 2 \text{ mag/c}$$

$$3) w_2 = \frac{v}{r} = 1,1547 \text{ mag/c}$$

$$4) |w| = \sqrt{w_1^2 + w_2^2} = \frac{4}{\sqrt{3}} = 2,3094 \text{ mag/c}$$

$$5) a = \frac{v^2}{r}$$

$$6) \frac{a}{r} = \frac{dv}{dt}$$



$$\frac{dv}{dt} = \frac{v^2}{r^2} = \frac{100}{75} = \frac{4}{3} \text{ mag/c}^2$$

2. задано

$$1) q_1 = q_2$$

$$2) \frac{q_1}{C_1} + \frac{q_2}{C_2} = \mathcal{E}$$



$$q_1 = q_2 = 20 \mu\text{Kл}$$

$$3) \frac{q_3}{C_3} = \mathcal{E}$$



$$q_3 = 100 \mu\text{Kл}$$

$$4) \frac{1}{C_{12}} = \frac{1}{C_1} + \frac{1}{C_2}$$



$$C_{12} = 2 \mu\text{Kф}$$

$$5) C = C_{12} + C_3 = 12 \mu\text{Kф}$$

3. Задача.

$$1) dA = -P dV$$

$$2) P_1 V_1 = P V$$

$$3) P_1 V_1 = P_2 V_2$$

$$4) P_2 = 3P_1$$

$$\int_0^A dA = -P_1 V_1 \int_{V_1}^{V_2} \frac{1}{V} dV$$



$$A = P_1 V_1 \ln|3|$$

$$V_1 = \frac{A}{P_1 \ln|3|} = 2,548 \text{ м}^3$$

$$5) P_1 V_1 = \frac{m}{\mu} RT$$

$$\mu = \frac{m RT \ln|3|}{A} = 3,917 \text{ г/моль}$$

Ответ: $\mu \rightarrow 3,917$