

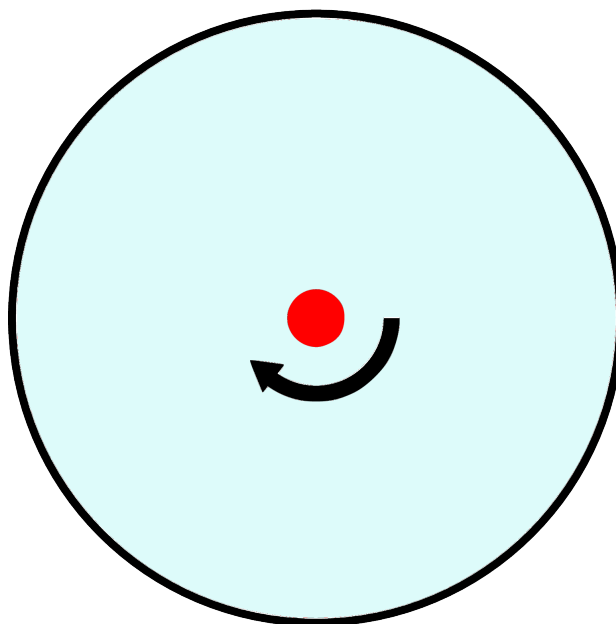


## Вихри в сверхтекучей жидкости

Задание А. Покоящийся вихрь. (0.75 балла)

**A.1** (0.25 pt)

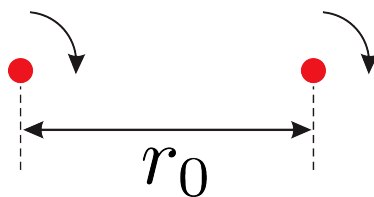
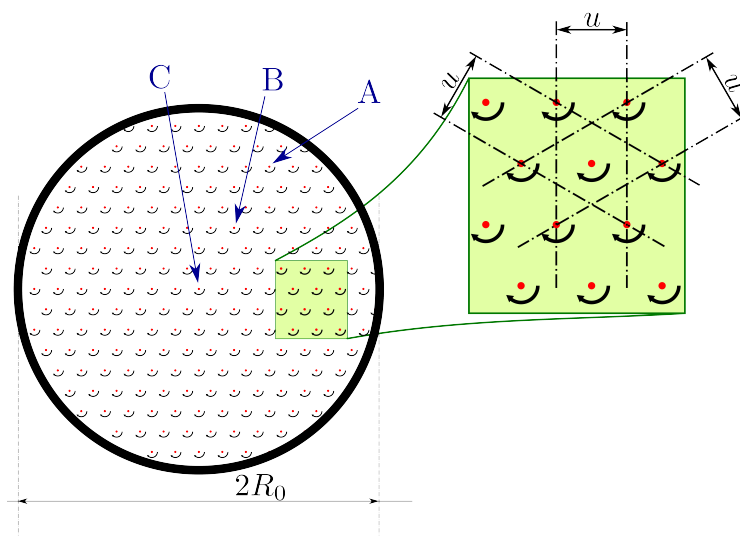
$v =$



**A.2** (0.5 pt)

$z(r) =$


**Задание В. Движущиеся вихри (1.4 балла)**
**B.1** (0.25 pt)

 $v_0 =$ 

**B.2** (0.15 pt)

**B.3** (0.4 pt)

 $v(\vec{r}) =$ 
**B.4** (0.35 pt)

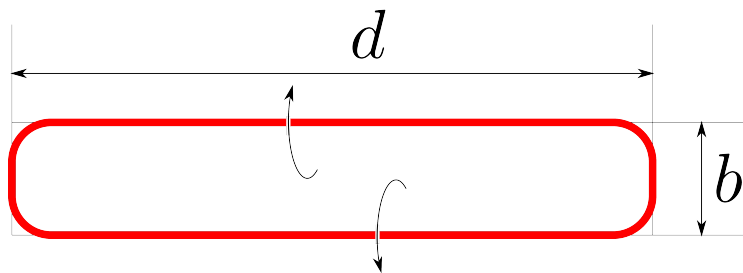
 $AB(t) =$


**B.5** (0.25 pt)

$$z(\vec{r}) =$$

**Задание С. Импульс и энергия (1.75 балла)**
**C.1** (0.3 pt)

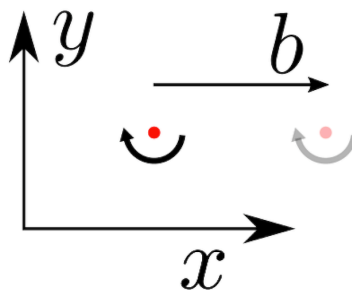
$$|\vec{P}| =$$


**C.2** (0.7 pt)

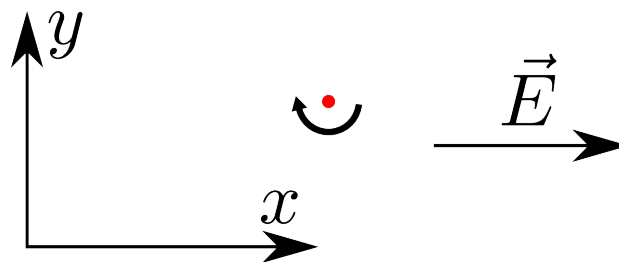
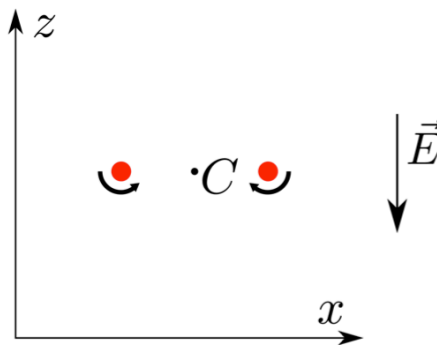
$$U =$$

**C.3** (0.75 pt)

$$|\Delta\vec{P}| =$$




**Задание D. Захваченные заряды (2.85 балла)**
**D.1** (0.5 pt)

 $v(t) =$ 

**D.2** (0.6 pt)

 $R(t) =$ 
**D.3** (1.5 pt)

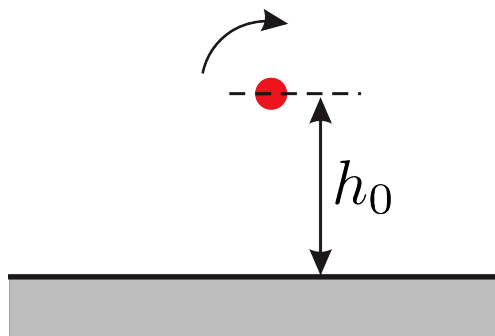
 $v(t) =$ 
**D.4** (0.25 pt)

 $v(t) =$



## Задание E. Влияние границ (3.25 балла)

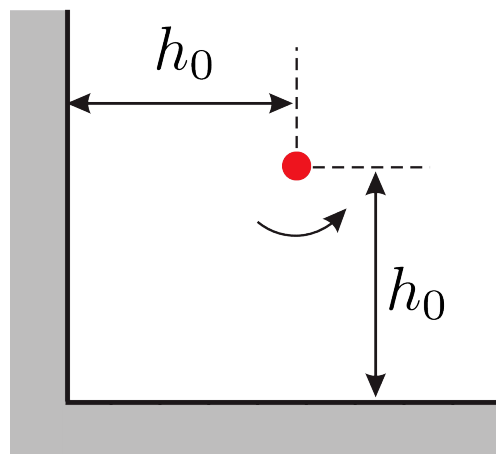
E.1 (0.5 pt)

 $v(t) =$ 

E.2 (0.75 pt)

 $v_0 =$ 

E.3 (0.5 pt)



E.4 (1.5 pt)

 $v_\infty =$