1. $-\bar{a} = (-1)\bar{a}$

$-\bar{a} = (-1)\bar{a} \quad | \cdot (-1)$

$\bar{a} = 1 \cdot \bar{a} \Rightarrow a \uparrow\uparrow a$

$|-1| \cdot |\bar{a}| = |(-1)\bar{a}| = 1 \cdot |\bar{a}| = |\bar{a}|$ $\Rightarrow -\bar{a} = (-1)\bar{a}$ (по опр.)

2.

$a_2 - a_1 = a_2 + (-a_1)$ - вычитание - частный случай сложения

$\exists\, \bar{a_1}(x_1; y_1);\ \bar{a_2}(x_2; y_2)$

$\bar{a_2} - \bar{a_1} = \bar{b_1}$

$\bar{b_1}(x_2 - x_1; y_2 - y_1)$

$a_2 + (-a_1) = \bar{b_2}$

$\bar{b_2}(x_2 + (-x_1); y_2 + (-y_1)) = \bar{b_2}(x_2 - x_1; y_2 - y_1)$

$\Rightarrow \bar{b_1} = \bar{b_2} \Rightarrow a_2 - a_1 = a_2 + (-a_1)$

3. $\bar{a} = |\bar{a}| \cdot \bar{a_0} \qquad \exists \bar{a}(x; y)$

$|\bar{a_0}| = 1, \quad |\bar{a}| = \sqrt{x_1^2 + y_1^2} = c, \quad \bar{a_0} = \left(\frac{x}{c}; \frac{y}{c}\right)$

$\bar{a} = |\bar{a}| \cdot \bar{a_0} \Leftrightarrow (x; y) = c \cdot \left(\frac{x}{c}; \frac{y}{c}\right) \Rightarrow (x; y) = (x; y) \Rightarrow \bar{a} = |\bar{a}| \cdot a_0$