Complex numbers 001

Problem has been graded.

$$\frac{\mathbf{V_1} + 6j}{2j} + \frac{\mathbf{V_1}}{-cj} + \frac{\mathbf{V_1}}{c} = 0$$

Find $\mathbf{V_1}$ in cartesian coordinates, i.e., find a and b:

$$\mathbf{V_1} = a + bj$$

Solve without a calculator

Given Variables:

c : 4 .

Calculate the following:

a (.) :

-6 ✓

b (.) :

-6 ✓

Hint: Solve in cartesian coordinates.

$$\frac{\mathbf{V_1}+6j}{2j}+\frac{\mathbf{V_1}}{-cj}+\frac{\mathbf{V_1}}{c}=0$$

c : 4

Find $\mathbf{V_1}$ in cartesian coordinates, i.e., find a and b:

$\mathbf{V_1} = a + bj$

$$\frac{V_1+6j}{2j} + \frac{V_1}{-4j} + \frac{V_1}{4} = 0$$

$$\frac{2V_1+12j}{4j} + \frac{(-V_1)}{4j} + \frac{V_1 \cdot j}{4j} = 0$$

$$V_1 + jV_1 = -12j$$

$$V_1 = -\frac{12j}{1+j} \cdot \frac{1-j}{1-j} = -\frac{12(j+1)}{1+1} = -6(1+j)$$

$\boxed{a = -6}$

$\boxed{b = -6}$