

The question

Task:

The point A(-6, -5) is translated using T: $(x,y) \rightarrow (x + 4, y + 6)$.
What is the distance from A to A'?

Solution:

$$T: (x,y) \rightarrow (x + 4, y + 6);$$

$$A(x,y) \rightarrow A'(x + 4, y + 6);$$

$$A(-6, -5) \rightarrow A'(x + 4, y + 6);$$

$$A(-6, -5) \rightarrow A'(-6 + 4, -5 + 6);$$

$$A(-6, -5) \rightarrow A'(-2, 1);$$

The distance between two points $A(x_1, y_1)$ and $A'(x_2, y_2)$ is $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$.

Since A(-6, -5) and A'(-2, 1) we receive:

$$d = \sqrt{((-6) - (-2))^2 + ((-5) - 1)^2} = \sqrt{(-6 + 2)^2 + (-5 - 1)^2} = \sqrt{(-4)^2 + (-6)^2} = \sqrt{16 + 36} = \sqrt{52} = 2\sqrt{13}$$

Answer: $2\sqrt{13}$.