**Activity 1.5.4 Composition –Two Translations**

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| **Construction Steps**In this activity you will draw the image of a triangle under a translation by carrying out the steps that follow. Draw all resulting images on the graph provided below. 1. Draw the image of $∆ABC $under a translation by the vector $\left[3,1\right]$ and label the image $∆A'B'C'$.
2. Draw the image of $∆A'B'C'$ under a translation by the vector $\left[-8,-2\right]$ and label the imgage $∆A^{''}B^{''}C^{''}.$

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**Comprehension Comments/Questions**

1. Comment on the horizontal and vertical distance between the corresponding vertices of $∆ABC $and $∆A''B''C''$.
2. Comment on any relationship between the location of $∆A''B''C''$ and the location of $∆ABC$ under a translation by the vector $ \left[-5,-1\right]$.
3. Explore by translating objects by different compositions of translations.

Compare the pre-image of the object to the final image just you did for $∆ABC$. Record your observations here.

1. Based on what you have observed, make a conjecture about how the translation by the vector $\left[a,b\right]followed $by the translation by the vector $\left[c, d\right] $has the same effect as a single translation. What vector would be associated with that translation?