**Activity 8.2.3 Adding Vectors Using Three Different Methods.**

**Adding Vectors Represented as Arrows.**

The drawing below shows two vectors

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1. What do the two vectors have in common? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is different about them? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Using a large sheet of graph paper and some straws, rods or other rigid thing objects, create the two vectorsshown above and place them in the position as you see them above.
4. Now leaving vectors so that its tail is on the head of vector.
5. Then create a new vector that goes from the tail of vector to the head of vector. Draw a diagram of what you did in the space below.

This is one method of adding vectors. Check that your diagram matches the one below. The new vector is the sum .

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**Addition of Vectors Using Addition of Components.**

1. Label the coordinate system above with a scale and use the two ordered pair notations (horizontal in parentheses and vertical in brackets) to write the ordered pairs for vectors
2. Now add the components of and compare your answer with the vector that you obtained using arrows to add the vectors.

Check your result:

1. Do the same thing with another pair of vectors.

First use rods, straws or other rigid way of representing vectors as arrows.

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1. Now use addition of components of to add and compare your result with what you obtained using arrows to add the vectors.
2. What did you observe when you compare with ?

The last method of adding vectors is the **parallelogram method**. Observe the geometric shape produced when showing the vector sum and on the same graph paper.

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1. This suggests a way of visualizing the sum of two vectors as the diagonal of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. If = (0, 3) and = (5,0) then find + .
3. If = (1, -2) and = (4, -5) then find + .