

- 1) The following picture shows washers that were placed at evenly-spaced time points as a dune buggy traveled along the floor. Time point values are labeled.



- a) **If the position values can be ranked** based only on the picture, then rank the washers from least position value to greatest position value.

Least Value I \_\_\_\_\_ II \_\_\_\_\_ III \_\_\_\_\_ IV \_\_\_\_\_ Greatest Value

- b) **If the position values cannot be ranked**, please check one of the following:

- The position value is *zero* for all of the washers.  
 The position values are equal (but not *zero*) for all of the washers.  
 It is not possible to determine the position values for any of the washers.

- c) Please carefully explain your reasoning.

- d) How sure are you of your ranking? (circle one)

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*basically guessed*                      *fairly sure*                                      *very confident*

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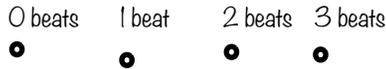
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2) The following picture shows washers that were placed at evenly-spaced time points as a dune buggy traveled along the floor. Time point values are labeled, but the reference point is not known.



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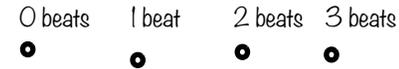
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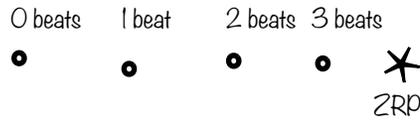
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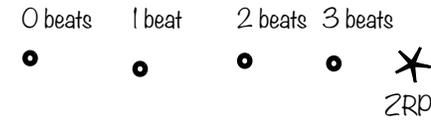
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5) This time, the students placed brightly-colored plastic shapes at evenly-spaced time points as a dune buggy traveled along the floor, shown in the picture below. Time point values are not labeled.



a) **If the position values can be ranked** based only on the picture, then rank the shapes from least position value to greatest position value.

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a) **If the placement order can be ranked** based only on the picture, then rank the shapes from first placed to last placed.

First Placed    I \_\_\_\_\_    II \_\_\_\_\_    III \_\_\_\_\_    IV \_\_\_\_\_    Last Placed

b) **If the placement order cannot be ranked**, please check one of the following:

- The shapes were all placed simultaneously.
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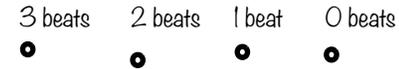
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