**Unit 7 #5 Partitioning Directed Line Segments**

**What is a directed line segment?**

* A ***directed line segment*** is a segment between two points *A* and *B* with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction, from *A* to *B* or from *B* to *A. To* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a directed line segment is to divide it into two segments with a given \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* **How to find the Coordinates of a Point in a Directed Line Segment**
1. Identify the \_\_\_\_\_\_\_\_\_\_\_ from start point to end point.
2. Find the change in \_\_\_\_\_\_ and the change in \_\_\_\_\_\_.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the change in x’s and the change in y’s by the \_\_\_\_\_\_\_\_\_ from start point to end point.
4. \_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ these values from your \_\_\_\_\_\_\_\_\_\_\_ point.

Example 1: Finding the Coordinates of a Point in a Directed Line Segment

* ![[image]]()**Find the point Q along the directed line segment from point *R*(–3, 3) to point *S*(6, –3) that divides the segment into the ratio 2 to 1.**

|  |  |
| --- | --- |
| Step 1 |  |
|  | X’s | Y’s |
| Step 2 |  |  |
| Step 3 |  |  |
| Step 4 |  |  |

Example 2: Find the coordinates of the point P that lies along the directed segment from A(1, 1) to B(7, 3) and partitions the segment in the ratio of 1 to 4.



**Practice Problem:** Find the point *Q* along the directed line segment from point *R*(–2, 4) to point *S*(18, –6) that divides the segment in the ratio 3 to 7.

![[image]]()