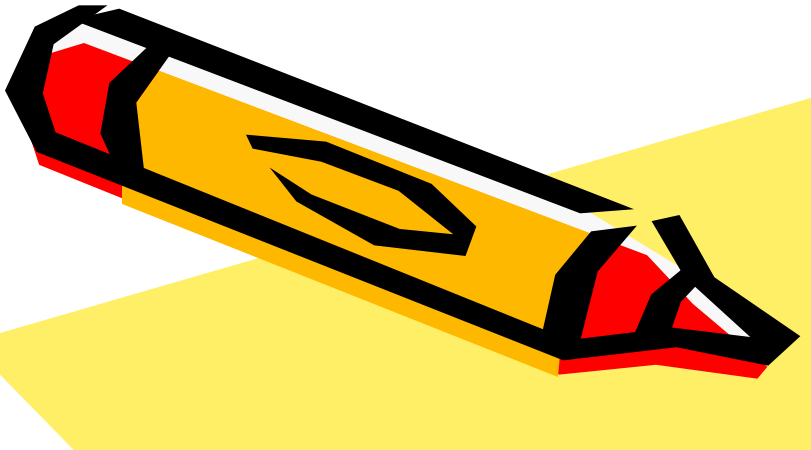
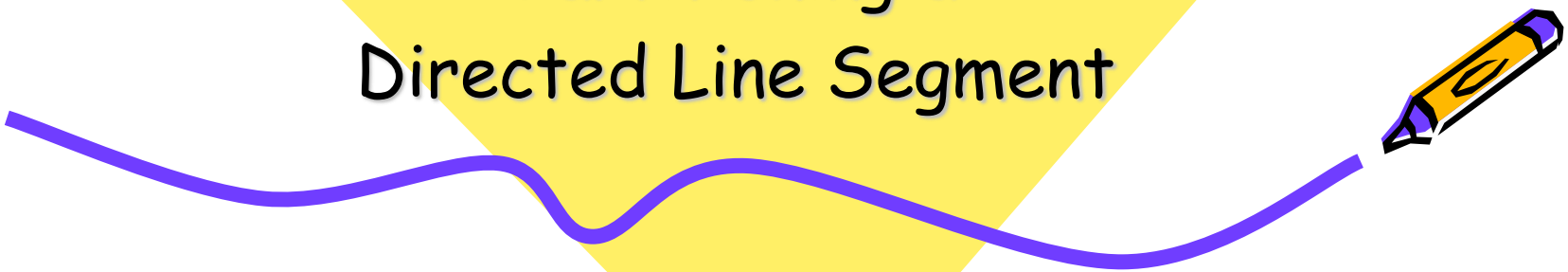


Geometry

Partitioning a Directed Line Segment



Partitioning a Directed Line Segment

Partitioning refers to dividing the segment into several equal pieces.

For example, a midpoint partitions a segment into 2 equal pieces.

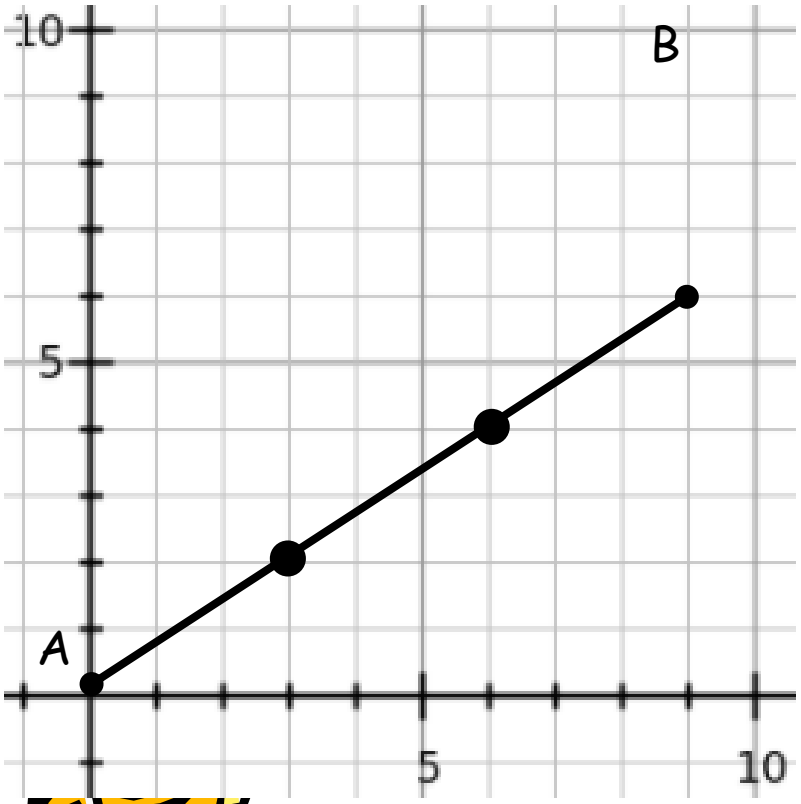
Partitioning a Directed Line Segment

What about partitioning a segment into 3 parts?

To do this we can divide both the rise and run by 3 to determine how to partition the segment.

1. Graph $\overline{AB}$ where A(0,0), B(9,6)
2. Determine the rise and run, then divide each by the number of parts we wish to define (in this case 3).
3. Add the resulting values to point A's x and y values respectively.
4. Continue until all partitions are identified.

Partitioning a Directed Line Segment



1. Graph $\overline{AB}$ where A(0,0), B(9,6)
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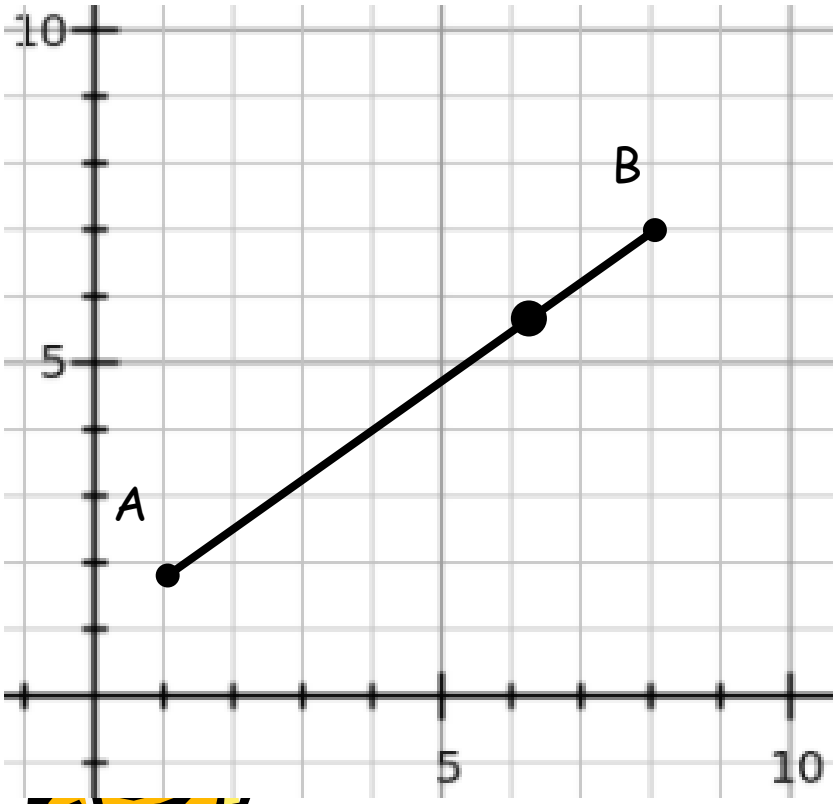
3. Add the resulting values to point A's x and y values respectively.
4. Continue until all partitions are identified.

Partitioning a Directed Line Segment

Partitioning a Line Segment using a ratio:

1. Determine the slope (rise and run), but DO NOT simplify the fraction
2. Multiply rise and run by the desired ratio
3. Add the resulting values to the starting point's x and y values respectively.

Partitioning a Directed Line Segment



Partition $\overline{AB}$ where A(1,2), and B(8,7) in a ratio of 3:1. In other words, find the point $\frac{3}{4}$ of the way from A to B.

rise = 5, run = 7

Partition point:

$(1 + 7 * \frac{3}{4}, 2 + 5 * \frac{3}{4})$

(6.25, 5.75)

Find the coordinates of point P along the directed line segment AB so that the ratio of AP to PB is 3 to 2.