Partitioning a Segment Notes Sheet

Partitioning a segment means that you are going to take a line segment and break it into equal parts and then find a point that is a specific distance between those points. We will be using the slope to find this.

Find the coordinates of the point P that lies along the directed line segment from $A(3, 4)$ to $B(6, 10)$ and partitions the segment in the ratio 3 to 2.

A Convert the ratio to a percent.

Point P is $\frac{3}{3+2} = \frac{3}{5}$ of the distance from A to B.

This is _____ % of the distance from A to B.

B Find the rise and run for $\overline{AB}$.

Rise $= 10 - 4 = 6$ Run = _____

C The slope of $\overline{AP}$ must be the same as the slope of $\overline{AB}$.
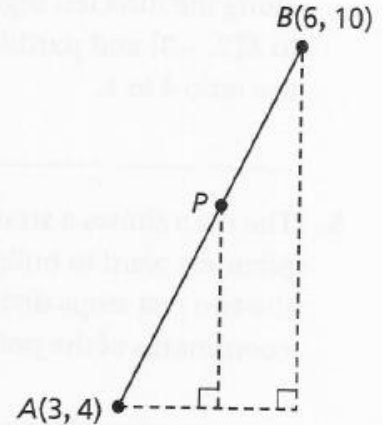
So, to find the coordinates of P, add _____ % of the run to the x-coordinate of

A and add _____ % of the rise to the y-coordinate of A.

x-coordinate of $P = 3 + $ ▢ $\cdot 3 = $ _____

y-coordinate of $P = 4 + $ ▢ $\cdot$ ▢ $= $ _____

So, the coordinates of P are _____ .
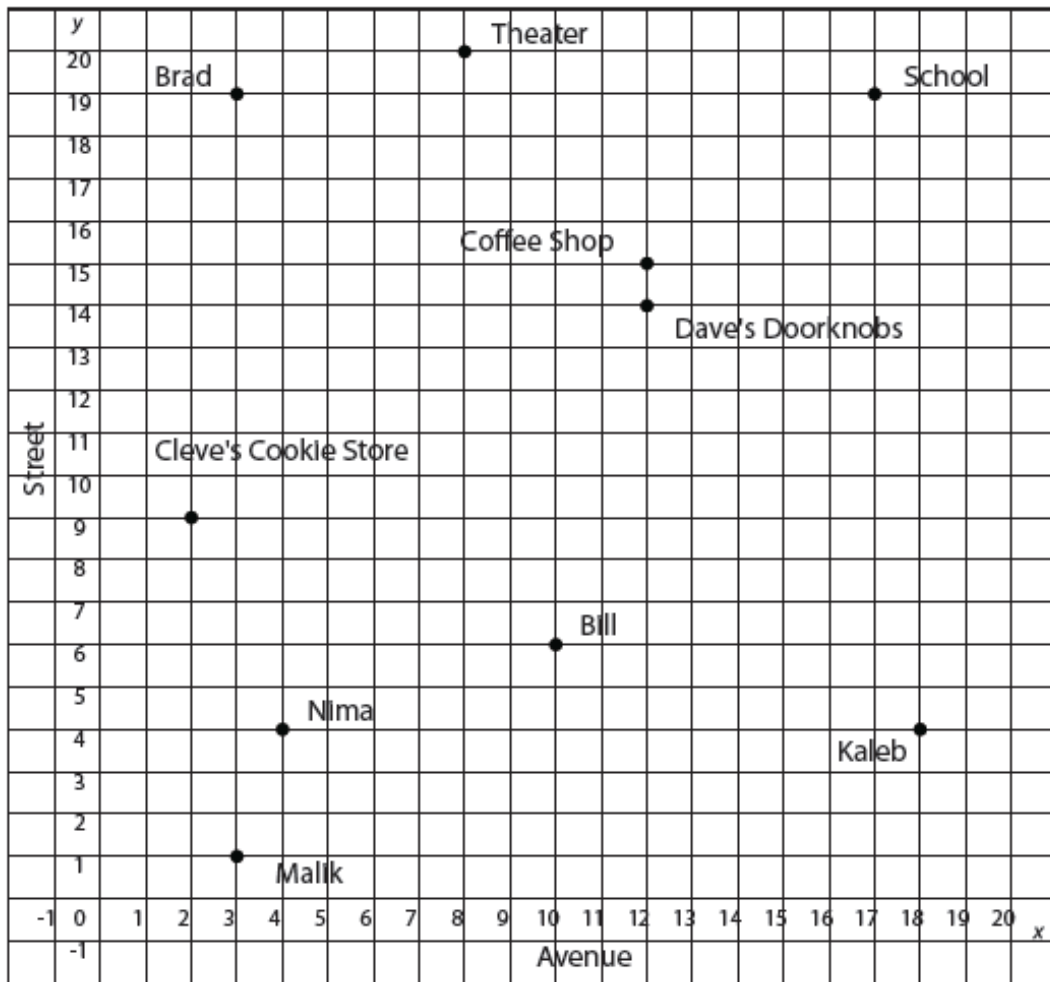

Guided Practice

Find the coordinates of the point P that lies along the directed segment from $J(-2,5)$ to $K(2,-3)$ and partitions the segment into the ratio $4\ to\ 1$.

Your Turn

Find the coordinates of the point P that lies along the directed segment from $R(-3,-4)$ to $S(5,\ 0)$ and partitions the segment into the ratio $2\ to\ 3$.

Use the map and the information given to solve each problem that follows.

Guided Practice

Cleve's Cookie Store is located at the corner of 2nd Avenue and 9th Street. Dave's Doorknobs is located at the corner of 12th Avenue and 14th Street. Located 1/5 of the distance from Cleve's Cookie Store is the post office. Where is the post office?

Your Turn

Luis works at a theater on 8th Avenue and 20th Street. Kaleb lives at the corner of 18th Avenue and 4th Street. What is a possible location that is midway between them?