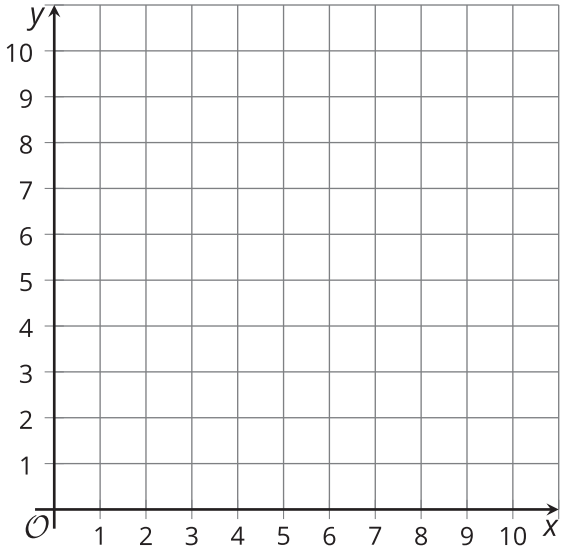
Unit 6 Lesson 15: Weighted Averages

1 Part Way: Points (Warm up)

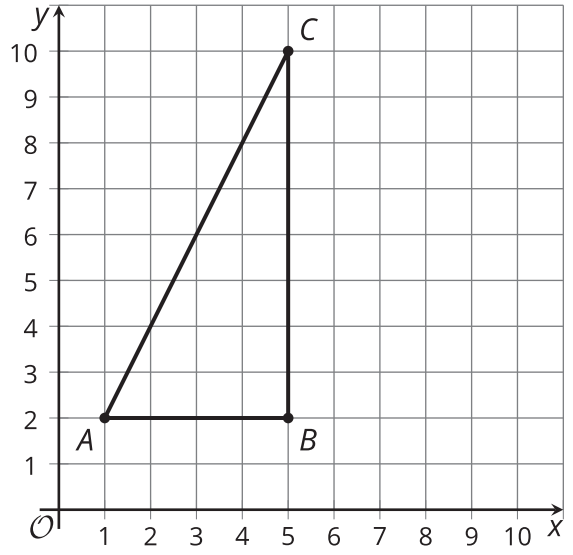
Student Task Statement

For the questions in this activity, use the coordinate grid if it is helpful to you.



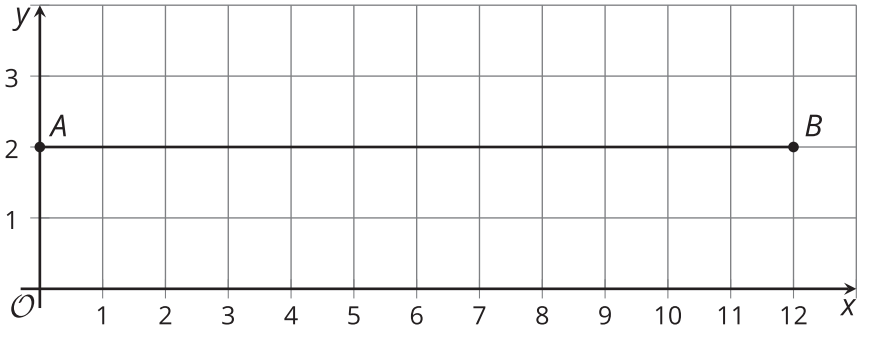
1. What is the midpoint of the segment connecting $(1, 2)$ and $(5, 2)$?
2. What is the midpoint of the segment connecting $(5, 2)$ and $(5, 10)$?
3. What is the midpoint of the segment connecting $(1, 2)$ and $(5, 10)$?

Activity Synthesis



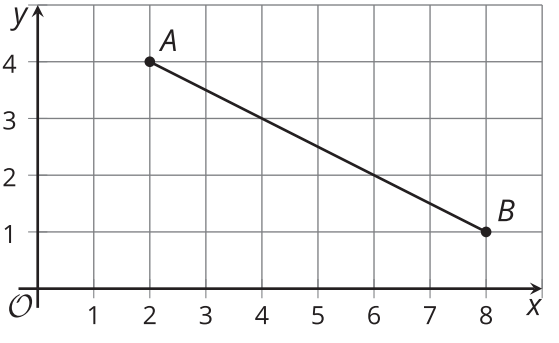
2 Part Way: Segment

Images for Launch



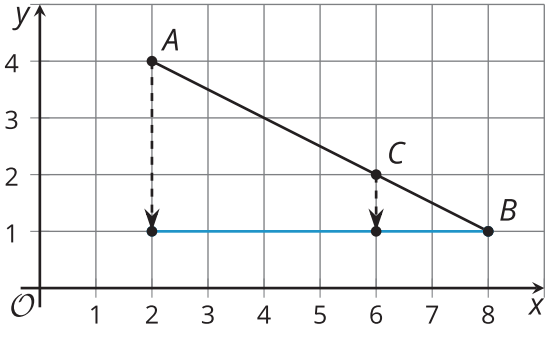
Student Task Statement

Point A has coordinates $(2, 4)$. Point B has coordinates $(8, 1)$.



1. Find the point that partitions segment AB in a $2 : 1$ ratio.
2. Calculate $C = \frac{1}{3}A + \frac{2}{3}B$.
3. What do you notice about your answers to the first 2 questions?
4. For 2 new points K and L, write an expression for the point that partitions segment KL in a $3 : 1$ ratio.

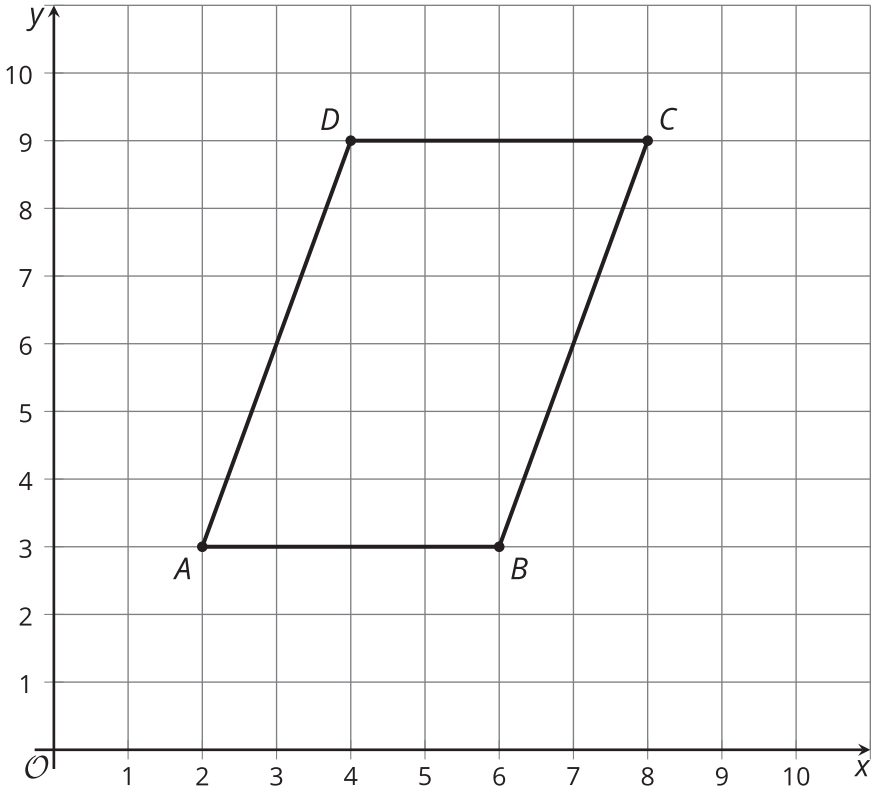
Activity Synthesis



3 Part Way: Quadrilateral

Student Task Statement

Here is quadrilateral $ABCD$.



1. Find the point that partitions segment AB in a $1:4$ ratio. Label it B'.
2. Find the point that partitions segment AD in a $1:4$ ratio. Label it D'.
3. Find the point that partitions segment AC in a $1:4$ ratio. Label it C'.
4. Is $AB'C'D'$ a dilation of $ABCD$? Justify your answer.

Images for Activity Synthesis