Name:

BECA / Dr. Huson / Geometry 04 Analytic Geometry

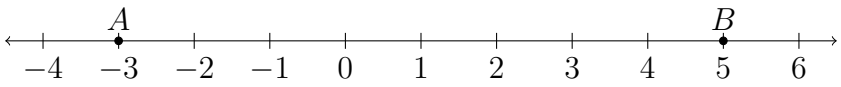
4.1 Midpoint Formula

1. Given $\overleftrightarrow{AB}$ as shown on the number line, with $A = -3$ and $B = 5$.

   (a) Find the length AB, writing an equation

   (b) What is half the length?

   (c) Mark and label the midpoint M between A and B

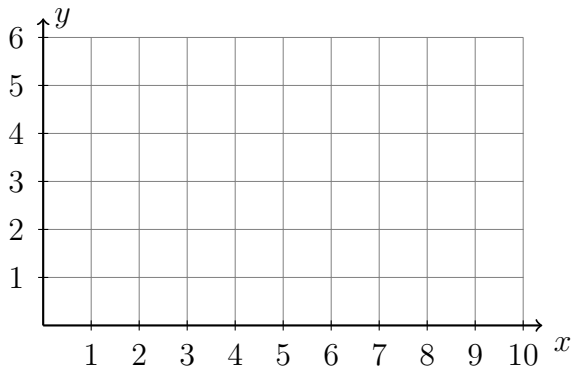


   (d) Dr. Huson's commute is from 80th Street to 164th Street. On what block is he half way?

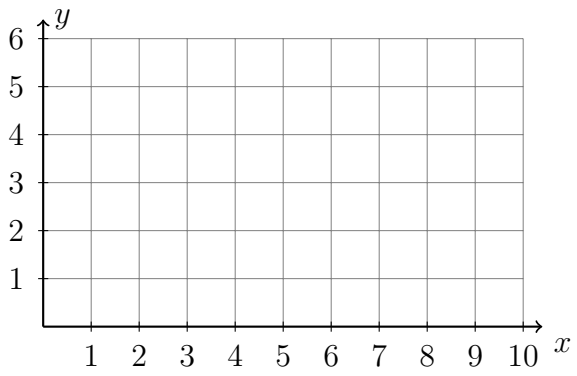
The midpoint formula

Given $A(x_A, y_A)$, $B(x_B, y_B)$, midpoint $M = \left(\frac{x_A + x_B}{2}, \frac{y_A + y_B}{2}\right)$

2. On the graph below, draw $\overline{AB}$, with $A(2, 3)$ and $B(8, 5)$, labeling the end points. Determine and state the coordinates of the midpoint M of $\overline{AB}$ and mark and label it on the graph.

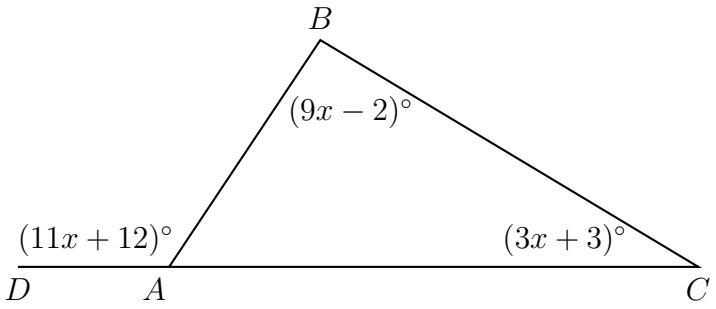


3. On the graph below, draw $\overline{AB}$, with $A(1,2)$ and $B(7,4)$, labeling the end points. Determine and state the coordinates of the midpoint M of $\overline{AB}$ and mark and label it on the graph.



4. Spicy Do Now: In $\triangle ABC$ shown below, side $\overline{AC}$ is extended to point D with $m\angle DAB = (11x + 12)^\circ$, $m\angle C = (3x + 3)^\circ$, and $m\angle B = (9x + 2)^\circ$.

   Find $m\angle BAC$.



5. Given isosceles $\triangle RSU$ with $\overline{US} \cong \overline{RS}$. If $m\angle UST = 150$ find $m\angle U$.