NOTES 1.3 – Midpoint & Segment Bisector

Objective:_____

_____

MIDPOINT of a segment:

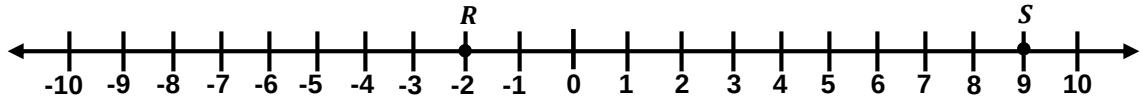
A point is the midpoint of a segment if it is _____ the two endpoints, and the distances from this point to each endpoint are _____.

Midpoint on a number line:

$$Midpoint = \frac{a + b}{2}$$

(Where a & b are coordinates of endpoints.)

EXAMPLE 1: Find the coordinate of the midpoint of $\overline{RS}$.

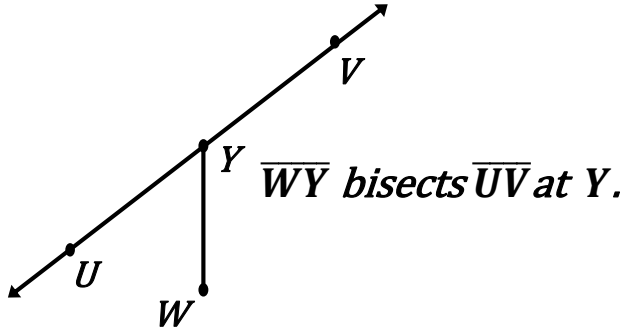


EXAMPLE 2: B is the midpoint of $\overline{AC}$. $AB = z + 2$ and $BC = 2z - 6$. Find "z".

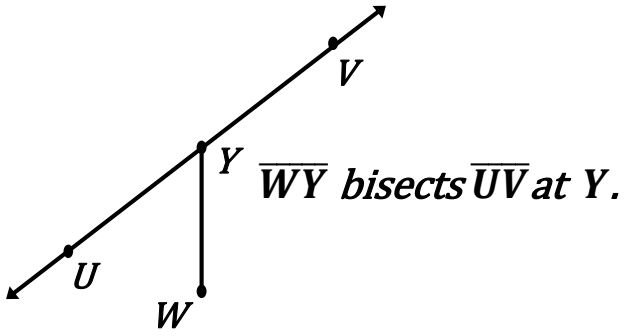
SEGMENT BISECTOR:

EXAMPLE 1: B is between A and C. $AB = 2y + 6$, $BC = y + 8$, and $AC = 20$. Find the value of "y" and determine if B is a bisector.

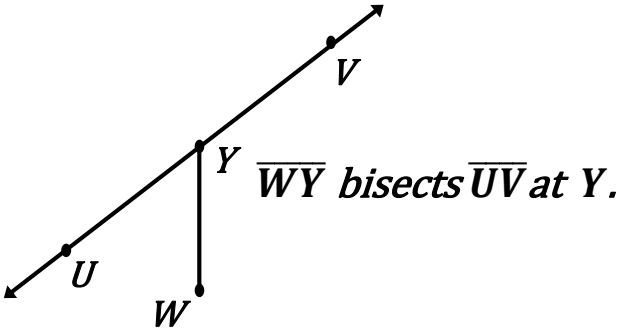
EXAMPLE 2: If $UY = 5$, then find YV and UV.



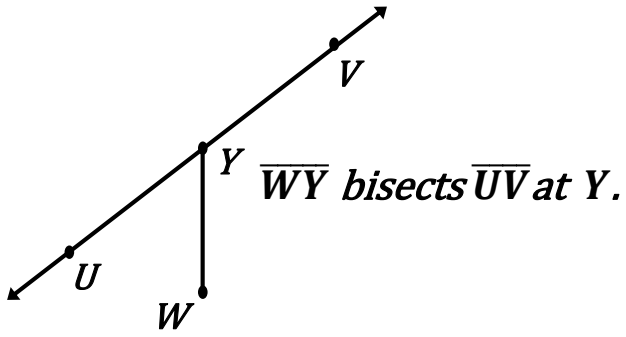
EXAMPLE 3: If $UV = 18$ and $UY = 9$, find YV.



EXAMPLE 3: If $UY = 4x - 3$ and $YV = x$, find UY and UV.



EXAMPLE 5: If $UV = x + 6$ and $UY = x - 1$, find YV.



Notes 1.3 (Continued)
Midpoint on a coordinate plane:

EXAMPLE 1: Find the midpoint between $(-11, 3)$ and $(8, -7)$.

EXAMPLE 2: Find the coordinates of the midpoint of $\overline{VW}$, if $V(3, -6)$ and $W(7, 2)$.

EXAMPLE 3: M is the midpoint of $\overline{AB}$ with $A(0, 1)$ and $M(3, 5)$. Find the coordinates of B.

EXAMPLE 4: The midpoint of $\overline{RQ}$ is $M(4, -1)$. What are the coordinates of R if Q is at $(3, -2)$?