| **Segment Addition Postulate:** If three points A, B, and C are collinear and B is between A and C, then _____	Definition of **midpoint:** A midpoint is a point that divides a segment into _____ _____ _____.
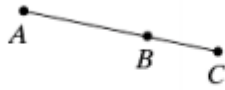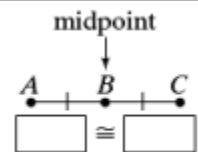
1. Points A, B, and C are collinear and A is between B and C. $AB = 4x - 3$, $BC = 7x + 5$, and $AC = 5x - 16$. Find each value.

2. Points N, O and P are collinear and O is between N and P. If $NO = 2y + 11$, $OP = 3y - 2$, $NP = 6y + 3$, and $MP = 64$, find each value.
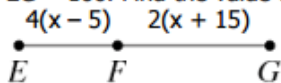
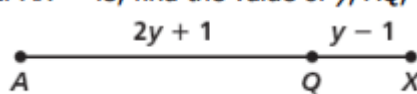3. If $GJ = 32$, find the value of x, GH and HJ.

$3x$ $9x - 8(x - 2)$
G H J
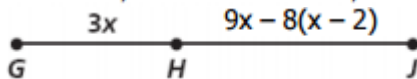
4. If $AB = 25$, find the value of x. Then find AN and NB.

$2x - 6$ $x + 7$
A N B
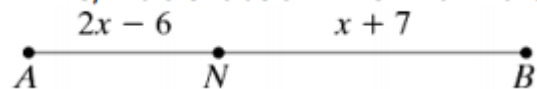
5. $EG = 100$. Find the value of x. Then find EF and FG.

$4(x - 5)$ $2(x + 15)$
E F G

6. If $AX = 45$, find the value of y, AQ, QX.

$2y + 1$ $y - 1$
A Q X

7. M is the midpoint of $\overline{RT}$. Find RM, MT, and RT.

$5x + 9$ $8x - 36$
R M T
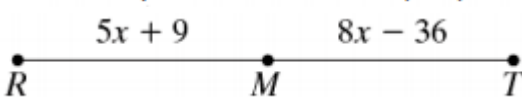
8. L is the midpoint of $\overline{KM}$. **Find *KL*, *LM* and *KM*.**

$2x - 3$ $x + 7$
K L M
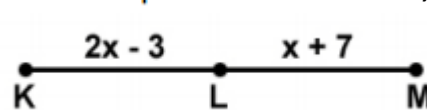
9. Y is the midpoint of $\overline{XZ}$. Find XZ.

$2(x + 4)$
X
$3x - 3$
Y
Z
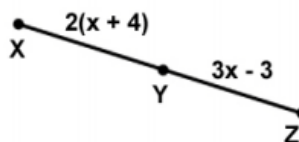
Use the figure to answer 10-13.

A   B C   D   E

-5   -3 -2   1   3
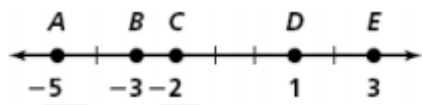
10. Are segments $\overline{AC}$ and $\overline{BD}$ congruent?

11. Are segments $\overline{AD}$ and $\overline{BE}$ congruent?
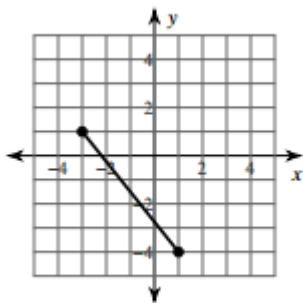
12. Find the midpoint of $\overline{AD}$.

13. Find the midpoint of $\overline{CD}$.

Find a) the midpoint of each segment and b) the distance between each point.

14. Q (9, −2) and R (3, 5)

15. D (32, 4) and E (20, 8)

16.

17.