1.4 - Segments - Homework

Find the length of each segment. Tell whether the segments are congruent.

1.) $\overline{AC}$ and $\overline{BD}$

2.) $\overline{AD}$ and $\overline{BE}$

On a number line, the coordinates of $X$, $Y$, $Z$, and $W$ are -7, -3, 1, and 5, respectively. Compare the lengths of the two segments.

3.) $\overline{XY}$ and $\overline{ZW}$

4.) $\overline{YZ}$ and $\overline{XW}$

Use the figure below for exercises 5-6.

5.) If $ST = 15$ and $RT = 40$, then $RS = ?$

6.) a. If $RS = 8y + 4$, $ST = 4y + 8$, and $RT = 15y - 9$, find the value of $y$.

   b. Find $RS$, $ST$, and $RT$. 
Use the figure below to find $PT$.

7.) $PT = 5x + 3$ and $TQ = 7x - 9$

8.) $PT = 7x - 24$ and $TQ = 6x - 2$

Use the figure below for exercises 9-13.

9.) Find the midpoint of $AB$.

10.) What is the number line coordinate of the midpoint of $QB$?

11.) What is the number line coordinate of the midpoint of $WA$?

12.) What is the coordinate of the midpoint of the segment formed by the two points you found in exercises 10 and 11?

13.) Suppose the number line coordinate of $A$ is 0 and $AR = 5$ and $AT = 7$ in the figure above. What are the possible number line coordinates of the midpoint of $AR$?
Describe the statement as true or false. Explain.

14. \( \overline{AB} \cong \overline{CD} \)

15. \( BD < CD \)

16. \( AC + BD = AD \)

17. \( AC + CD = AD \)

18. Suppose \( EG = 5 \). Find the possible number line coordinate(s) of point \( G \).
Answer Key

1. 9, 9; yes
2. 11, 13; no
3. $XY = ZW$
4. $YZ < XW$
5. 25
6. a. 7
   b. $RS = 60, ST = 36, RT = 96$
7. 33
8. 130
9. Q
10. 6
11. -4
12. 1
13. -2.5, 2.5
14. true; $AB = 2, CD = 2$
15. false; $BD = 9, CD = 2$
16. false; $AC = 9, BD = 9, AD = 11$, and $9 + 9 \neq 11$. 
17. true; $AC = 9, CD = 2, AD = 11$, and $9 + 2 = 11$
18. 2, 12