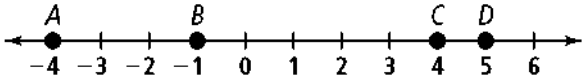
Name_____ Date_____

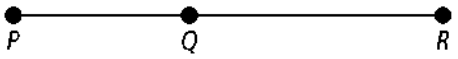
1.2 – Measuring Segments

In Exercises 1–6, use the figure below. Find the length of each segment.



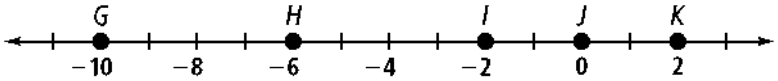
1. $\overline{AB}$
2. $\overline{BC}$
3. $\overline{AC}$
4. $\overline{AD}$
5. $\overline{BD}$
6. $\overline{CD}$

For Exercises 7–9, use the figure at the right.



7. If $PR = 25$ and $PQ = 12$, then $QR =$ ☐.
8. If $PR = 19$ and $QR = 12$, then $PQ =$ ☐.
9. If $PR = 10$ and $PQ = 4$, then $QR =$ ☐.

Use the number line below for #10–12. Tell whether the segments are congruent.



10. $\overline{GH}$ and $\overline{HI}$
11. $\overline{GH}$ and $\overline{IK}$
12. $\overline{HJ}$ and $\overline{IK}$

13. Points *A, Q,* and *O* are collinear. $AO = 10$, $AQ = 15$, and $OQ = 5$. What must be true about their positions on the line?

Use the figure at the right. (Show all algebraic work!)

14. Given: $ST = x + 3$ and $TU = 4x - 6$.

a. What is the value of *ST?*

b. What is the value of *SU?*

15. On a number line, suppose point E has a coordinate of 3, $EG = 6$, and $EX = 12$. Does point G have to be the midpoint of $\overline{EX}$? What are possible coordinates for G and X? (Show work.)

On a number line, the coordinates of P, Q, R, and S are −12, −5, 0, and 7, respectively.

16. Draw a sketch of this number line. Use this sketch to answer #17–20.

17. Which line segment is the shortest? _____

18. Which line segment is the longest? _____

19. Which line segments are congruent? _____

20. What is the coordinate of the midpoint of $\overline{PR}$?

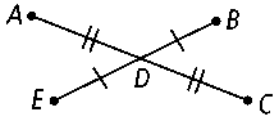
21. You plan to drive north from city A to town B and then continue north to city C. The distance between city A and town B is 39 mi, and the distance between town B and city C is 99 mi.

    a. Assuming you follow a straight driving path, after how many miles of driving will you reach the midpoint between city A and city C?

    b. If you drive an average of 46 mi/h, how long will it take you to drive from city A to city C?

22. Point O lies between points M and P on a line. $OM = 34z$ and $OP = 36z - 7$. If point N is the midpoint of $\overline{MP}$, what algebraic equation can you use to find MN?

Use the diagram at the right for #23–24.



23. If $DC = 6x$ and $DA = 4x + 18$, find the value of x. Then find AD, DC, and AC.

24. If $EB = 4y - 12$ and $ED = y + 17$, find the value of y. Then find ED, DB, and EB.

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25. Is it possible that $PQ + QR < PR$? Explain.