

# 1.2 – SEGMENTS & THEIR MEASURES

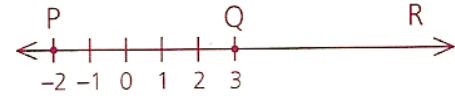
ALL WORK MUST BE SHOWN TO RECEIVE CREDIT.

1. Points  $P$ ,  $Q$ , and  $R$  are collinear.

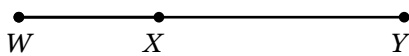
a. Find  $PQ$ .

b. If  $R$ 's coordinate is 7, why is  $\overline{PQ}$  not congruent to  $\overline{QR}$ ?

c. What must the coordinate of  $R$  be in order for  $Q$  to be the midpoint of  $\overline{PR}$ ?

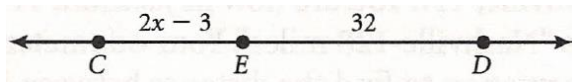


2. Points  $W$ ,  $X$ , and  $Y$  are collinear.  $WY = 25$  and the ratio of  $WX$  to  $XY$  is 2:3. Find  $WX$ .

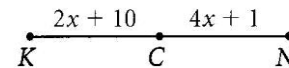


3. The lengths of two segments are in the ratio 5:3, and the longer segment exceeds the shorter segment by 14. Find the length of the longer segment.

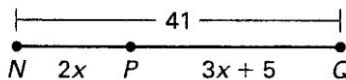
4. If  $CD = 5x - 7$ , find the value of  $x$ ,  $CE$ , and  $CD$ .



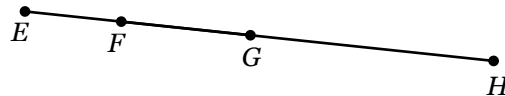
5. If  $C$  is the midpoint of  $\overline{KN}$ , what is  $KC$ ?



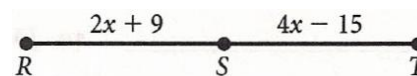
6. Use the Segment Addition Postulate to find the value of  $x$  and the length of  $PQ$ . Leave your answer as an improper fraction.



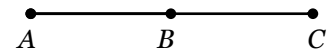
7. Points  $E$ ,  $F$ ,  $G$ , and  $H$  are collinear.  $EF = 2x + 7$ ,  $GH = 3x - 1$ ,  $FG = 6$ , and  $G$  is the midpoint of  $\overline{EH}$ . Use the Segment Addition Postulate to find the value of  $x$  and  $EG$ .



8. If the ratio of  $\frac{RS}{ST} = \frac{5}{7}$ , find the value of  $x$ ,  $RS$ , and  $RT$ .

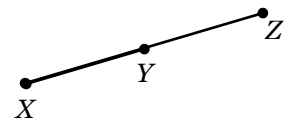


9. Points  $A, B,$  &  $C$  are collinear.  $AB = x + 4, BC = 2x,$  and  $AC = 16.$  Is  $\overline{AB} \cong \overline{BC}$ ? Explain your reasoning.



10. Point  $M$  is between  $L$  and  $N$  on  $\overline{LN}.$   $LM = x^2 - 6x, MN = x,$  and  $LN = 50.$  Use the Segment Addition Postulate to set up and solve a quadratic equation and find the value of  $x$  (that makes sense). Then find  $LM$  and  $MN.$

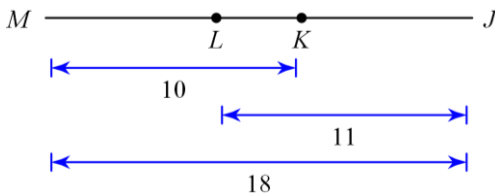
11. Points  $X, Y,$  and  $Z$  are collinear.  $XY = x^2 + 3, YZ = 4 + 2x,$  and  $XZ = 15.$   
 a. Use the Segment Addition Postulate to set up and solve a quadratic equation and find the value of  $x$  (that makes sense).



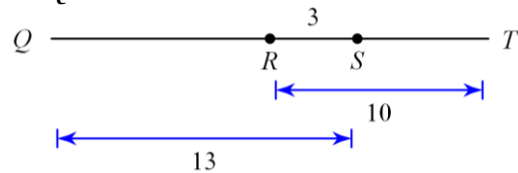
- b. Is  $Y$  the midpoint of  $\overline{XZ}$ ? Explain your reasoning.

Find the segment length indicated.

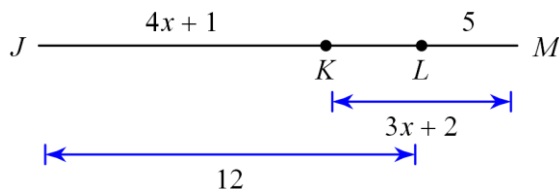
12. Find  $LK.$



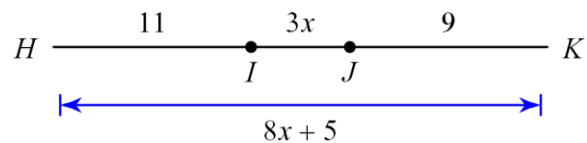
13. Find  $QT.$



14. Use the Segment Addition Postulate to find the value of  $x$  and the length of  $JK.$



15. Use the Segment Addition Postulate to find the value of  $x.$  Identify any congruent segments.



16. In the diagram,  $\overline{AF} \cong \overline{GE}, \overline{CD} \cong \overline{CB},$   $I$  and  $H$  trisect  $\overline{CD}, CE = 0.5AE, DG = 8,$   $AB = CD = 12,$  and  $CE = 6.$  Find the lengths of ALL segments in the diagram.

