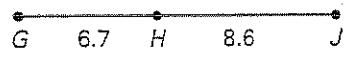
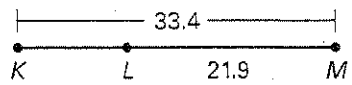


Find the indicated length.

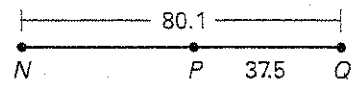
4. Find GJ . 15.3



5. Find KL . 11.5



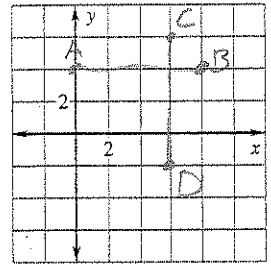
6. Find NP . 42.6



Plot the given points in a coordinate plane. Then determine whether the line segments named are congruent.

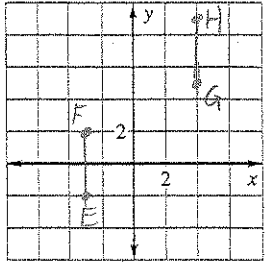
7. $A(0, 4), B(8, 4), C(6, 6), D(6, -2)$;

\overline{AB} and \overline{CD} YES

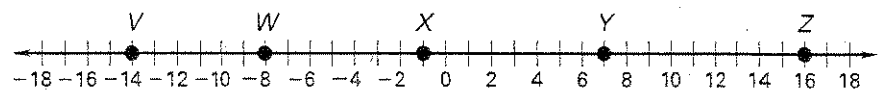


8. $E(-3, -2), F(-3, 2), G(4, 5), H(4, 9)$;

\overline{EF} and \overline{GH} YES



Use the number line to find the indicated distance.



11. VW 6

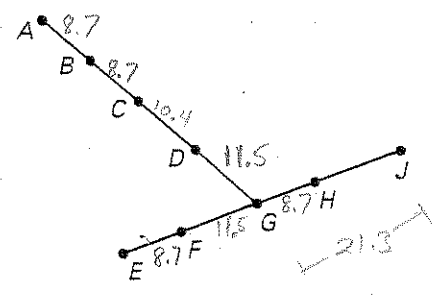
12. XY 8

13. XZ 17

14. VX

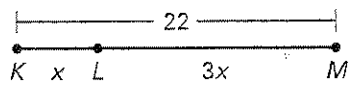
In the diagram, points $A, B, C, D,$ and G are collinear, points $E, F, G, H,$ and J are collinear, $CD = 10.4, BD = 19.1, GJ = 21.3, BG = 30.6, AB = BC = EF = GH,$ and $DG = FG$. Find the indicated length.

- 19. $AB = 8.7$
- 20. $CG = 21.9$
- 21. $AG = 39.3$
- 22. $FG = 11.5$
- 23. $EH = 28.9$
- 24. $EJ = 41.5$



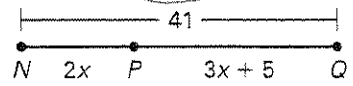
Find the indicated length.

25. Find LM .



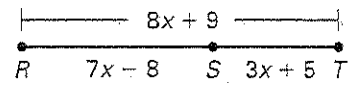
$4x = 22$
 $x = 5.5$
 $LM = 16.5$

26. Find PQ $26\frac{3}{5}$



$5x + 5 = 41$
 $5x = 36$
 $x = 7\frac{1}{5}$
 $21\frac{3}{5} + 5$

27. Find ST . 23



$10x - 3 = 8x + 9$
 $2x = 12$
 $x = 6$

Point B is between A and C on \overline{AC} . Use the given information to write an equation in terms of x . Solve the equation. Then find AB and BC .

28. $AB = 7x + 2 = 51$
 $BC = 2x - 1 = 13$
 $AC = 64$

29. $AB = 10x + 4 = 79$
 $BC = 4x - 3 = 27$
 $AC = 12x + 16$

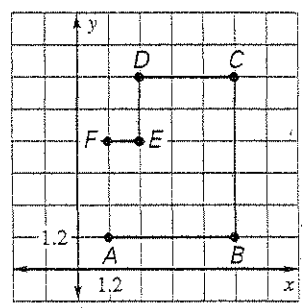
30. $AB = 4x + 3 = 35$
 $BC = 8x - 11 = 53$
 $AC = 10.5x + 4$

$9x + 1 = 64$
 $x = 7$

$14x + 1 = 12x + 16$
 $2x = 15$
 $x = 7.5$

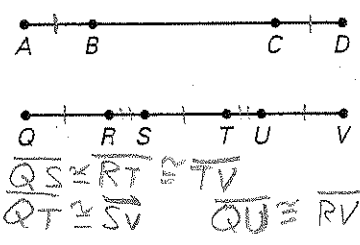
$12x - 8 = 10.5x + 4$
 $1.5x = 12$
 $x = 8$

31. **Marathon** A marathon is being planned in your city. The course for the race is through different parts of the city as shown in the graph. The race starts at point A and the finish line is at point F . The distance is in miles.



- 262 a. How many miles is the entire race? **18**
 b. How many miles is it from the start of the race to point C ? **10.8**
 c. How many miles is it from point D to the finish line? **3.6**
 d. How many miles would be eliminated from the race if the runners were told to turn left at point $(6, 4.8)$ and then head straight for the finish line? **4.8 miles**

1. In the diagram at the right, $AB = CD$. Use the Segment Addition Postulate to show that $AC = BD$.
 2. In the diagram at the right, $\overline{QR} \cong \overline{ST} \cong \overline{UV}$ and $\overline{RS} \cong \overline{TU}$. Use the Segment Addition Postulate to determine what other segments must be congruent.



$AB = CD$
 $AB + BC = BC + CD$
 $AC = BD$

In Exercises 3-5, let $A, B, C, D,$ and F be five points in the plane. Determine whether the given condition is sufficient to conclude that $\overline{AD} + \overline{DF} + \overline{FC} + \overline{CB} = \overline{AB}$. Justify your answer using the Segment Addition Postulate and/or by making a sketch.

3. D is between A and C , and F is between D and B . **NO**
 4. F is between D and C , A is between D and F , and B is between F and C . **NO**
 5. $C, D,$ and F are all between A and B . **NO**



In Exercises 7-9, point M is between L and N on \overline{LN} . Use the given information to write an equation in terms of x . Solve the equation (disregard any answers that do not make sense in the context of the problem). Then find LM and MN .

7. $LM = x^2$
 $MN = x$
 $LN = 12$

8. $LM = x^2 - 6x = 40$
 $MN = x = 10$
 $LN = 50$

9. $LM = x^2 = 12.25$
 $MN = x^2 + 9x = 43.75$
 $LN = 56$

$x^2 + x = 12$
 $x^2 + x - 12 = 0$
 $(x+4)(x-3) = 0$
 $x = -4$ or $x = 3$

$x^2 - 6x + x = 50$
 $x^2 - 5x - 50 = 0$
 $(x-10)(x+5) = 0$
 $x = 10$ or $x = -5$

$2x^2 + 9x = 56$
 $2x^2 + 9x - 56 = 0$
 $(2x-7)(x+8) = 0$
 $x = 3.5$ or $x = -8$