

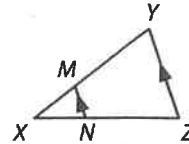


Check Your Understanding

= Step-by-Step Solutions begin on page R14.

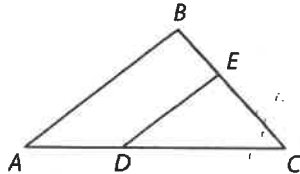
Example 1

1. If $XM = 4$, $XN = 6$, and $NZ = 9$, find XY .
2. If $XN = 6$, $XM = 2$, and $XY = 10$, find NZ .

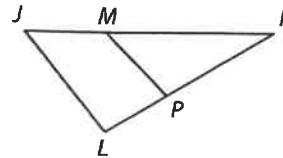


Example 2

3. In $\triangle ABC$, $BC = 15$, $BE = 6$, $DC = 12$, and $AD = 8$. Determine whether $\overline{DE} \parallel \overline{AB}$. Justify your answer.



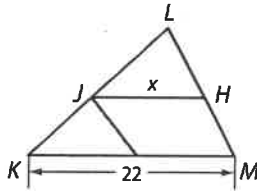
4. In $\triangle JKL$, $JK = 15$, $JM = 5$, $LK = 13$, and $PK = 9$. Determine whether $\overline{JL} \parallel \overline{MP}$. Justify your answer.



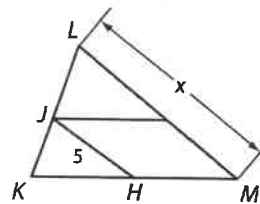
Example 3

\overline{JH} is a midsegment of $\triangle KLM$. Find the value of x .

5.



6.



Example 4

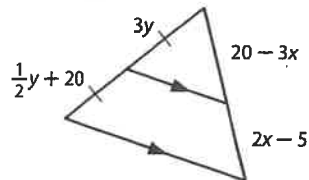
7. **MAPS** Refer to the map at the right. 3rd Avenue and 5th Avenue are parallel. If the distance from 3rd Avenue to City Mall along State Street is 3201 feet, find the distance between 5th Avenue and City Mall along Union Street. Round to the nearest tenth.



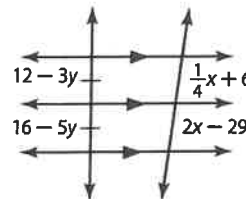
Example 5

ALGEBRA Find x and y .

8.



9.

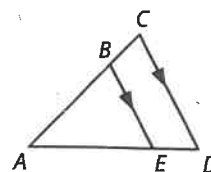


Practice and Problem Solving

Extra Practice is on page R7.

Example 1

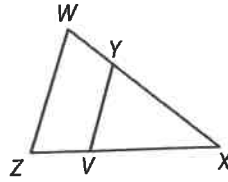
10. If $AB = 6$, $BC = 4$, and $AE = 9$, find ED .
11. If $AB = 12$, $AC = 16$, and $ED = 5$, find AE .
12. If $AC = 14$, $BC = 8$, and $AD = 21$, find ED .
13. If $AD = 27$, $AB = 8$, and $AE = 12$, find BC .



Example 2

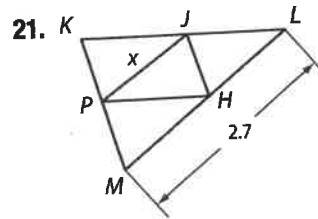
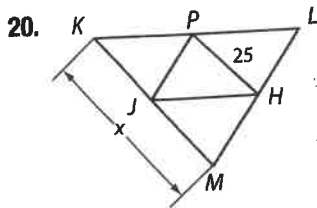
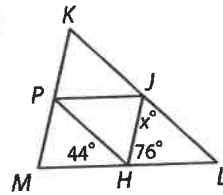
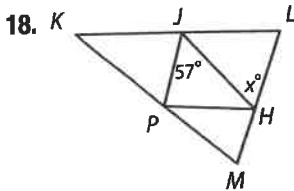
Determine whether $\overline{VY} \parallel \overline{ZW}$. Justify your answer.

14. $ZX = 18$, $ZV = 6$, $WX = 24$, and $YX = 16$
15. $VX = 7.5$, $ZX = 24$, $WY = 27.5$, and $WX = 40$
16. $ZV = 8$, $VX = 2$, and $YX = \frac{1}{2}WY$
17. $WX = 31$, $YX = 21$, and $ZX = 4ZV$



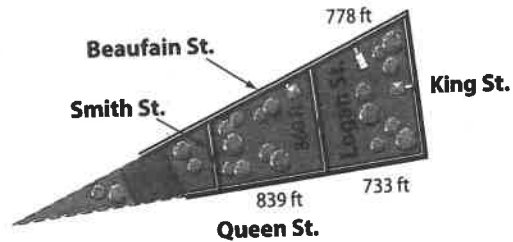
Example 3

\overline{JH} , \overline{JP} , and \overline{PH} are midsegments of $\triangle KLM$. Find the value of x .

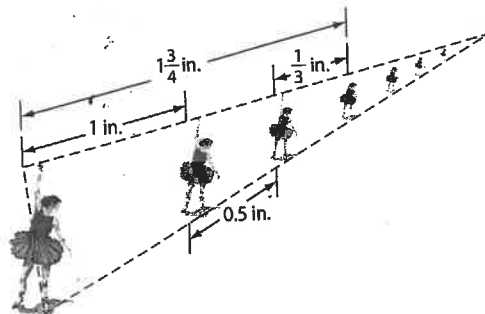


Example 4

22. **CCSS MODELING** In Charleston, South Carolina, Logan Street is parallel to both King Street and Smith Street between Beaufain Street and Queen Street. What is the distance from Smith to Logan along Beaufain? Round to the nearest foot.

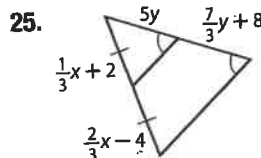
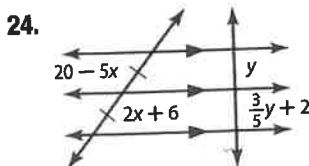


23. **ART** Tonisha drew the line of dancers shown below for her perspective project in art class. Each of the dancers is parallel. Find the lower distance between the first two dancers.

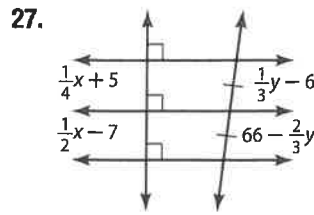
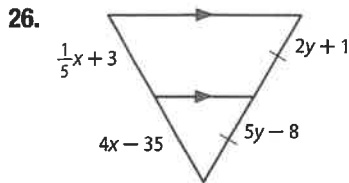


Example 5

ALGEBRA Find x and y .



ALGEBRA Find x and y .



CCSS ARGUMENTS Write a paragraph proof.

28. Corollary 7.1

29. Corollary 7.2

30. Theorem 7.5

CCSS ARGUMENTS Write a two-column proof.

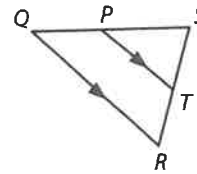
31. Theorem 7.6

32. Theorem 7.7

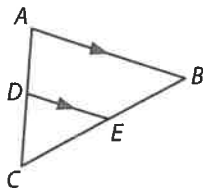
Refer to $\triangle QRS$.

33. If $ST = 8$, $TR = 4$, and $PT = 6$, find QR .

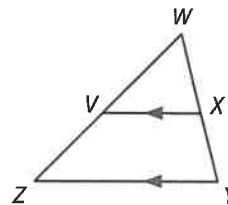
34. If $SP = 4$, $PT = 6$, and $QR = 12$, find SQ .



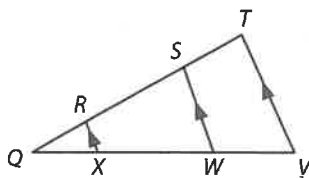
35. If $CE = t - 2$, $EB = t + 1$, $CD = 2$, and $CA = 10$, find t and CE .



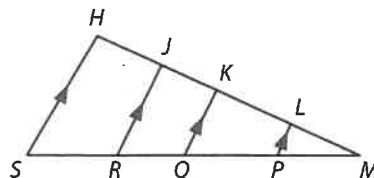
36. If $WX = 7$, $WY = a$, $WV = 6$, and $VZ = a - 9$, find WY .



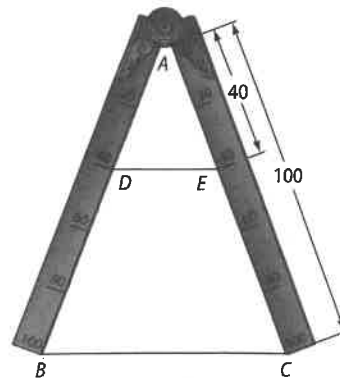
37. If $QR = 2$, $XW = 12$, $QW = 15$, and $ST = 5$, find RS and WV .



38. If $LK = 4$, $MP = 3$, $PQ = 6$, $KJ = 2$, $RS = 6$, and $LP = 2$, find ML , QR , QK , and JH .



39. **MATH HISTORY** The sector compass was a tool perfected by Galileo in the sixteenth century for measurement. To draw a segment two-fifths the length of a given segment, align the ends of the arms with the given segment. Then draw a segment at the 40 mark. Write a justification that explains why the sector compass works for proportional measurement.



Determine the value of x so that $\overline{BC} \parallel \overline{DF}$.

40. $AB = x + 5$, $BD = 12$, $AC = 3x + 1$, and $CF = 15$

41. $AC = 15$, $BD = 3x - 2$, $CF = 3x + 2$, and $AB = 12$

