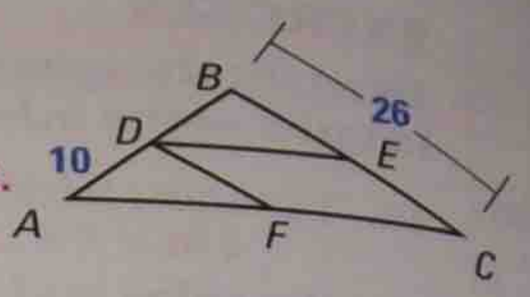
5 CHAPTER TEST

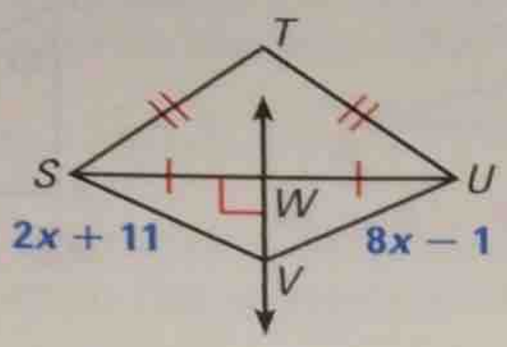
Two midsegments of $\triangle ABC$ are $\overline{DE}$ and $\overline{DF}$.

1. Find DB. **10**
2. Find DF. **13**
3. What can you conclude about $\overline{EF}$? **$\overline{EF}$ is a midsegment.**

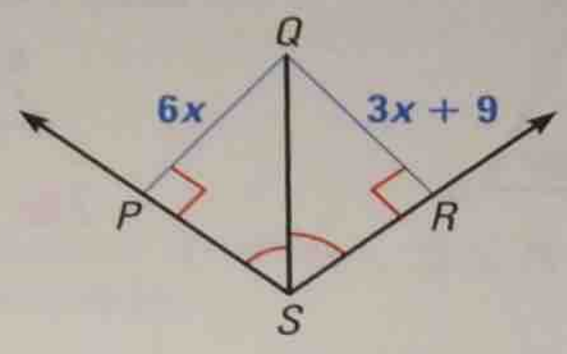


Find the value of x. *Explain* your reasoning.

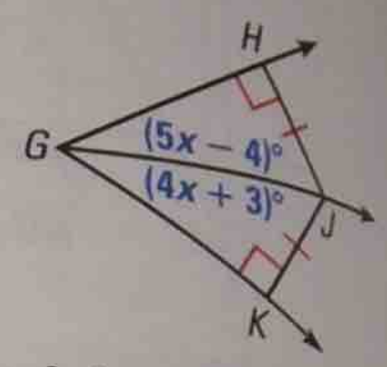
4.



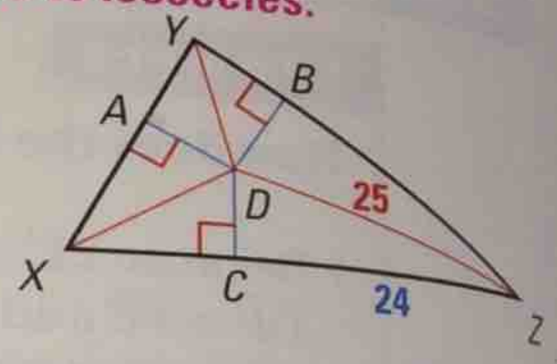
5.



6.

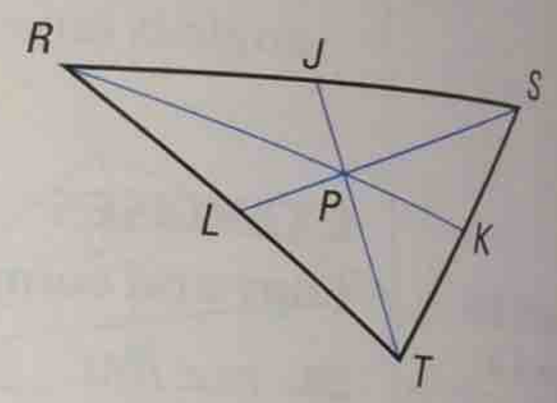


7. In Exercise 4, is point T on the perpendicular bisector of $\overline{SU}$? *Explain*. **Yes; $\triangle STU$ is isosceles.**
8. In the diagram at the right, the angle bisectors of $\triangle XYZ$ meet at point D. Find DB. **7**



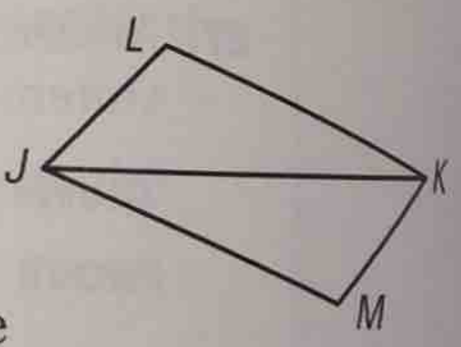
In the diagram at the right, P is the centroid of $\triangle RST$.

9. If $LS = 36$, find PL and PS. **12, 24**
10. If $TP = 20$, find TJ and PJ. **30, 10**
11. If $JR = 25$, find JS and RS. **25, 50**



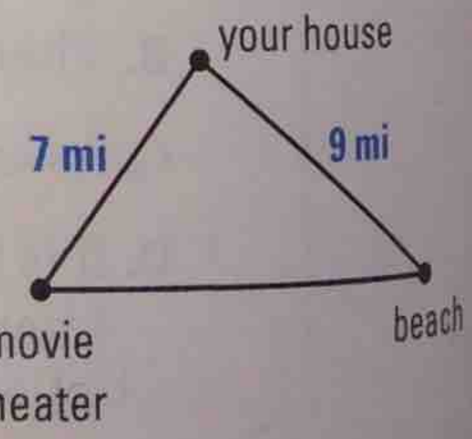
12. Is it possible to construct a triangle with side lengths 9, 12, and 22? If not, *explain* why not. **No; the sum of the lengths of any two sides of a triangle must be greater than the length of the third side.**
13. In $\triangle ABC$, $AB = 36$, $BC = 18$, and $AC = 22$. Sketch and label the triangle. List the angles in order from smallest to largest. **$\angle A$, $\angle B$, $\angle C$; see margin for art.**

In the diagram for Exercises 14 and 15, $JL = MK$. **See margin.**



14. If $m\angle JKM > m\angle LJK$, which is longer, $\overline{LK}$ or $\overline{MJ}$? *Explain*.
15. If $MJ < LK$, which is larger, $\angle LJK$ or $\angle JKM$? *Explain*.
16. Write a temporary assumption you could make to prove the conclusion indirectly: *If $RS + ST \neq 12$ and $ST = 5$, then $RS \neq 7$.* **Assume that $RS = 7$.**

Use the diagram in Exercises 17 and 18.



17. *Describe* the range of possible distances from the beach to the movie theater. **2 mi < d < 16 mi**
18. A market is the same distance from your house, the movie theater, and the beach. Copy the diagram and locate the market. **See margin.**

4. 2; $\triangle SWV \cong \triangle UWV$ so $SV = UV$.

5. 3; since $\overline{QS}$ bisects $\angle PSR$ the Angle Bisector Theorem guarantees $PQ = RQ$.

6. 7; since J is interior to $\angle HGK$ and equidistant from each side of the angle, the Converse of the Angle Bisector Theorem guarantees $m\angle HGJ = m\angle KGJ$.

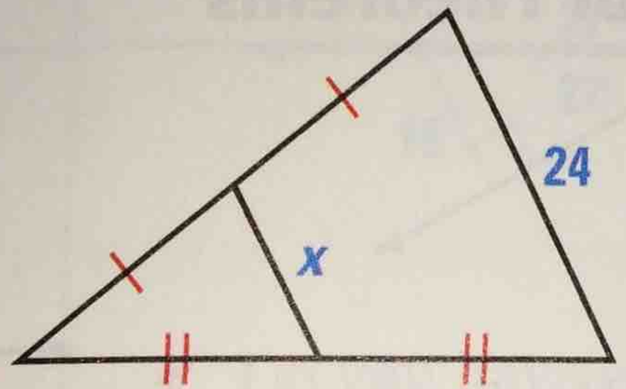
14. $\overline{MJ}$; the Hinge Theorem guarantees the longer side is opposite the larger angle.

15. $\angle LJK$; the Converse of the Hinge Theorem guarantees the larger angle is opposite the longer side.

QUIZ for Lessons 5.1–5.2

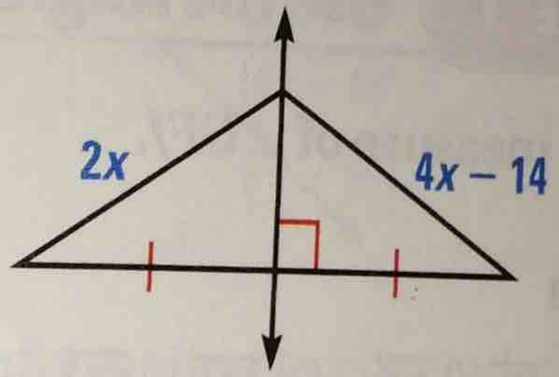
Find the value of x. Identify the theorem used to find the answer. *(pp. 295, 303)*

1.



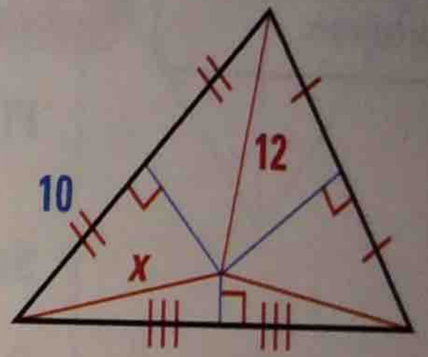
12; Midsegment Theorem

2.



7; Perpendicular Bisector Theorem

3.



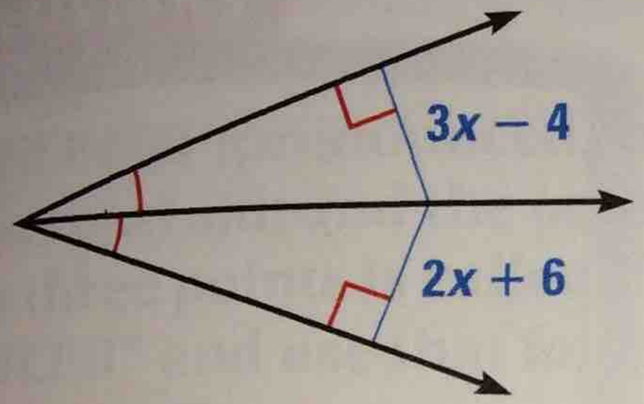
4. Graph the triangle with vertices $R(2a, 0)$, $S(0, 2b)$, and $T(2a, 2b)$, where a and b are positive. Find RT and ST. Then find the slope of $\overline{SR}$ and the coordinates of the midpoint of $\overline{SR}$. *(p. 295)* **$2b$, $2a$; $-\frac{b}{a}$, (a, b); see margin for art.**

3. 12; Concurrency of Perpendicular Bisectors Theorem

QUIZ for Lessons 5.3–5.4

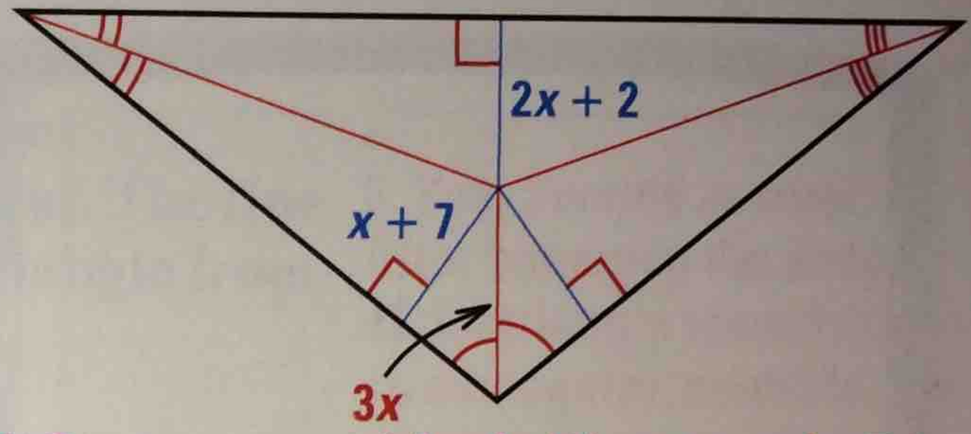
Find the value of x. Identify the theorem used to find the answer. *(p. 310)*

1.



10; Angle Bisector Theorem

2.



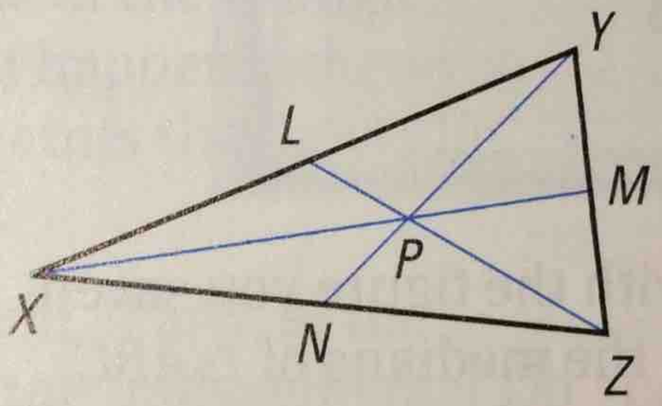
5; Concurrency of Angle Bisectors of a Triangle

In the figure, P is the centroid of $\triangle XYZ$, $YP = 12$, $LX = 15$, and $LZ = 18$. *(p. 319)*

3. Find the length of $\overline{LY}$. 15

4. Find the length of $\overline{YN}$. 18

5. Find the length of $\overline{LP}$. 6



QUIZ for Lessons 5.5–5.6

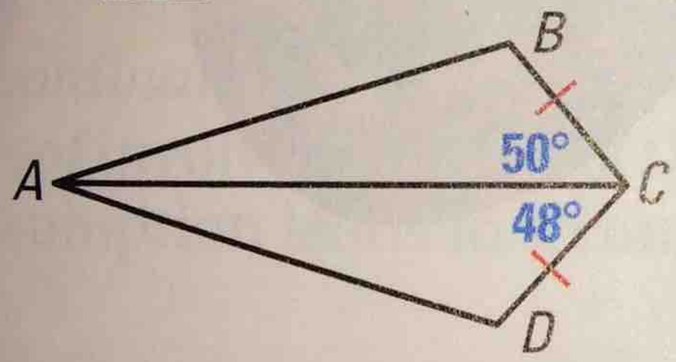
1. Is it possible to construct a triangle with side lengths 5, 6, and 12? If not, *explain* why not. *(p. 328)* **No; 5 + 6 must be greater than 12.**

2. The lengths of two sides of a triangle are 15 yards and 27 yards. *Describe* the possible lengths of the third side of the triangle. *(p. 328)* **12 yd < x < 42 yd**

3. In $\triangle PQR$, $m\angle P = 48°$ and $m\angle Q = 79°$. List the sides of $\triangle PQR$ in order from shortest to longest. *(p. 328)* **$\overline{QR}$, $\overline{PQ}$, $\overline{PR}$**

Copy and complete with <, >, or =. *(p. 335)*

4. BA ? DA **>**



5. $m\angle 1$? $m\angle 2$ **>**