

Test Chapter 5 - Practice

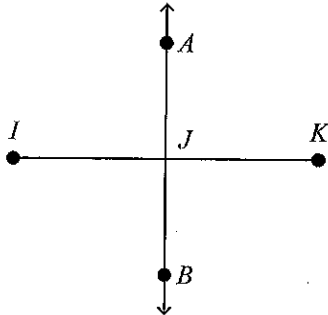
Multiple Choice

Identify the choice that best completes the statement or answers the question.

Determine whether the given measures can be the lengths of the sides of a triangle. Write yes or no. Explain.

- _____ 1. 3, 9, 10
 a. Yes; the third side is the longest.
 b. No; the sum of the lengths of two sides is not greater than the third.
 c. No; the first side is not long enough.
 d. Yes; the sum of the lengths of any two sides is greater than the third.
- _____ 2. 9.2, 14.5, 17.1
 a. Yes; the third side is the longest.
 b. No; the first side is not long enough.
 c. Yes; the sum of the lengths of any two sides is greater than the third.
 d. No; the sum of the lengths of two sides is not greater than the third.
- _____ 3. Which statement can you conclude is true from the given information?

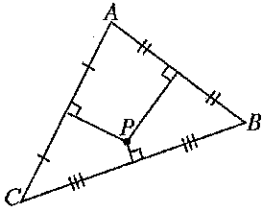
Given: \overleftrightarrow{AB} is the perpendicular bisector of \overline{IK} .



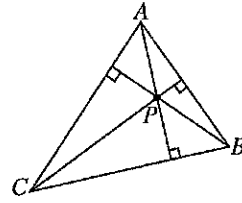
- | | |
|-----------------------------------|---|
| a. $AJ = BJ$ | c. $IJ = JK$ |
| b. $\angle IAJ$ is a right angle. | d. A is the midpoint of \overline{IK} . |

4. Which diagram shows a point P an equal distance from points A , B , and C ?

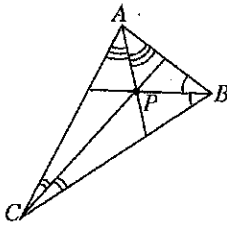
a.



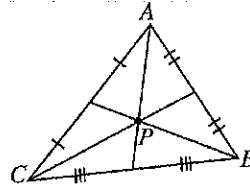
c.



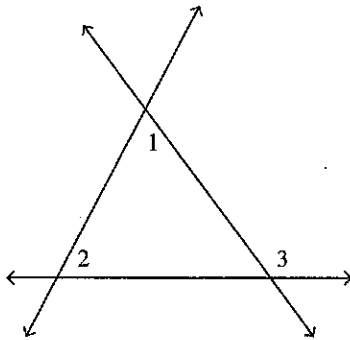
b.



d.

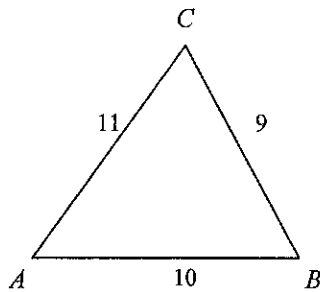


5. Which labeled angle has the greatest measure? The diagram is not to scale.



- a. $\angle 1$
- b. $\angle 2$
- c. $\angle 3$
- d. not enough information in the diagram

6. Name the smallest angle of $\triangle ABC$. The diagram is not to scale.



- a. Two angles are the same size and smaller than the third.
- b. $\angle B$
- c. $\angle A$
- d. $\angle C$

7. Which three lengths CANNOT be the lengths of the sides of a triangle?

- a. 23 m, 17 m, 14 m
- b. 11 m, 11 m, 12 m
- c. 5 m, 7 m, 8 m
- d. 21 m, 6 m, 10 m

8. Two sides of a triangle have lengths 6 and 17. Which expression describes the length of the third side?

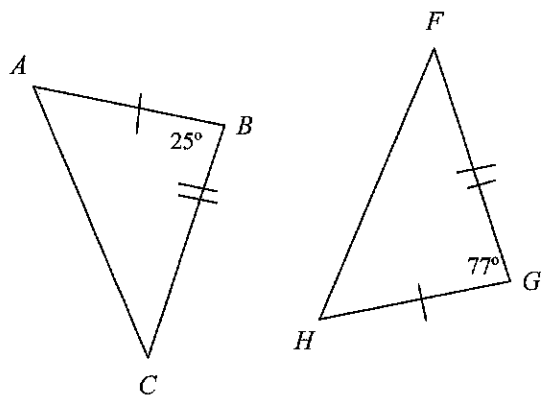
- a. at least 11 and less than 23
- b. at least 11 and at most 23
- c. greater than 11 and at most 23
- d. greater than 11 and less than 23

9. Two sides of a triangle have lengths 7 and 15. Which inequalities represent the possible lengths for the third side, x ?

- a. $7 < x < 15$
- b. $8 < x < 15$
- c. $8 < x < 7$
- d. $8 < x < 22$

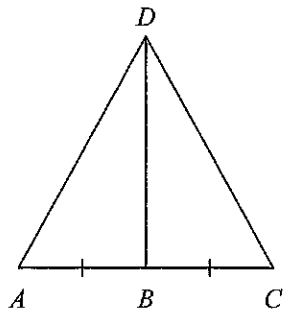
10. Which of the following must be true?

The diagram is not to scale.



- a. $AC < FH$
- b. $BC < FH$
- c. $AB < BC$
- d. $AC = FH$

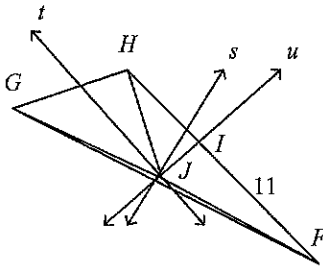
11. If $m\angle DBC = 92^\circ$, what is the relationship between AD and CD ?



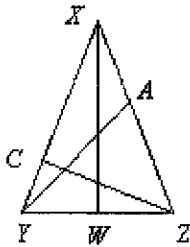
- a. $AD < CD$
 b. $AD > CD$
 c. $AD = CD$
 d. not enough information

Short Answer

12. Lines s , t , and u are perpendicular bisectors of the sides of $\triangle FGH$ and meet at J . If $JG = 4x + 3$, $JH = 2y - 3$, $JF = 7$ and $HI = 3z - 4$, find x , y , and z .

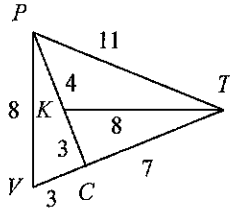


13. \overline{XW} is an angle bisector, $\angle YXZ = 7x + 39$, $\angle WXY = 10x - 13$, and $\angle XZY = 10x$. Find $m\angle WZX$. Is \overline{XW} an altitude?



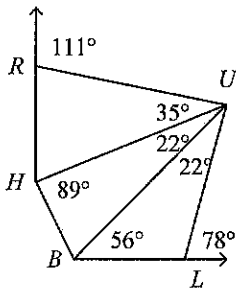
Determine the relationship between the measures of the given angles.

14. $\angle PTC, \angle VPT$



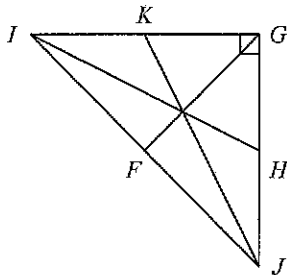
Determine the relationship between the lengths of the given sides.

15. $\overline{HB}, \overline{BL}$

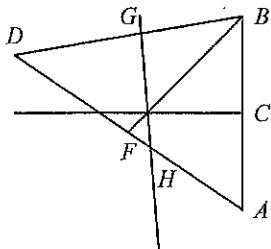


Write a two-column proof.

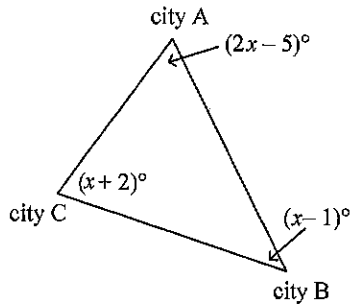
16. If \overline{GF} is a median of isosceles $\triangle GIJ$, then $\triangle JGF \cong \triangle IGF$.



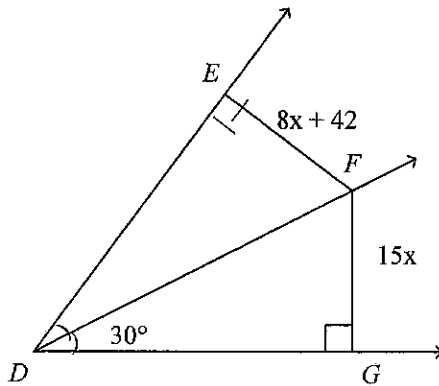
17. If \overline{BF} is a median and a perpendicular bisector of $\triangle BDA$, then $\triangle FBA \cong \triangle FBD$.



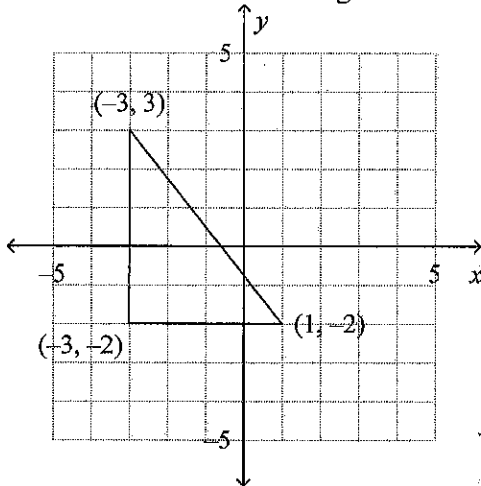
18. A salesperson travels from city A to city B and then to city C. From city C, the salesperson travels directly back to city A as shown in the diagram below. Write the lengths of the legs of the trip in order from least to greatest.



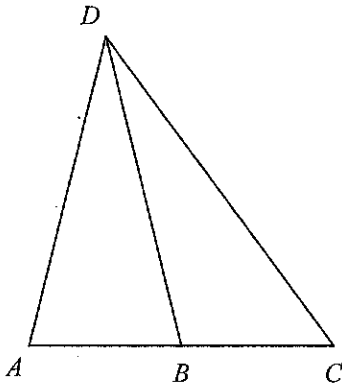
19. \overrightarrow{DF} bisects $\angle EDG$. Find the value of x . The diagram is not to scale.



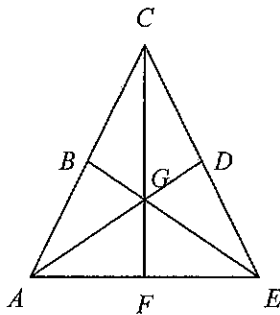
20. Find the circumcenter of the triangle.



21. Find the length of \overline{AB} , given that \overline{DB} is a median of the triangle and $AC = 26$.

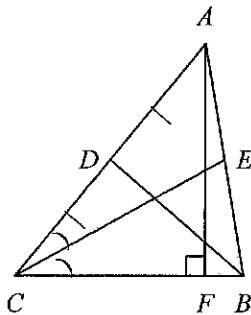


22. In $\triangle ACE$, G is the centroid and $BE = 9$. Find BG and GE .



23. In $\triangle ABC$, centroid D is on median \overline{AM} . $AD = x + 4$ and $DM = 2x - 4$. Find AM .

24. Name a median for $\triangle ABC$.

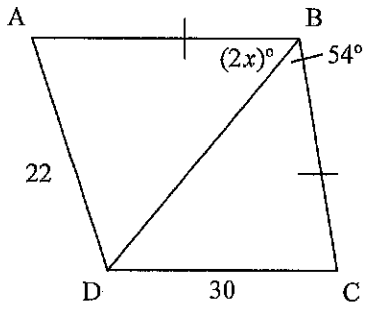


25. For a triangle, list the respective names of the points of concurrency of

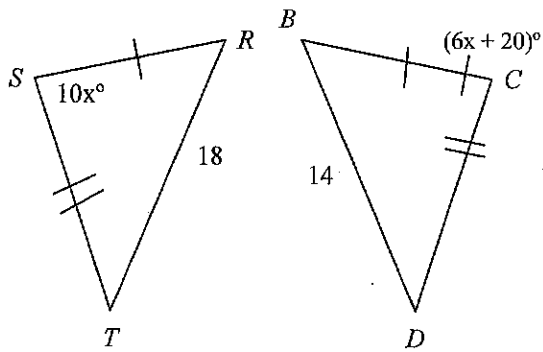
- perpendicular bisectors of the sides
- bisectors of the angles
- medians
- lines containing the altitudes

26. $m\angle A = 9x - 7$, $m\angle B = 7x - 9$, and $m\angle C = 28 - 2x$. List the sides of $\triangle ABC$ in order from shortest to longest.

27. What is the range of possible values for x ?
The diagram is not to scale.



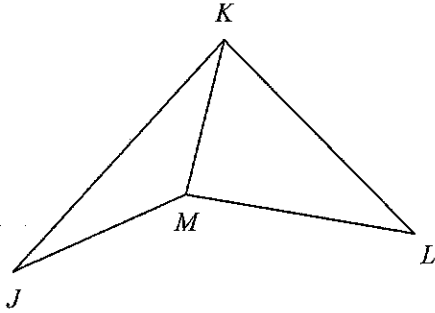
28. What is the range of possible values for x ?



29. What are the missing reasons in the two-column proof?

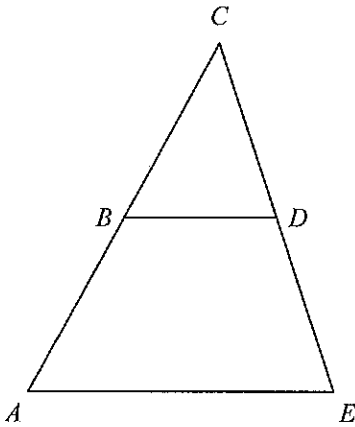
Given: $JM = ML$ and $m\angle JMK > m\angle KML$

Prove: $JK > KL$



Statements	Reasons
1. $JM = ML$	1. Given
2. $KM = KM$	2. <u>?</u>
3. $m\angle JMK > m\angle KML$	3. Given
4. $JK > KL$	4. <u>?</u>

30. B is the midpoint of \overline{AC} and D is the midpoint of \overline{CE} . Solve for x , given $BD = 5x + 3$ and $AE = 4x + 18$.



Test Chapter 5 - Practice Answer Section

MULTIPLE CHOICE

1. D
2. C
3. C
4. A
5. C
6. C
7. D
8. D
9. D
10. A
11. A

SHORT ANSWER

12. $x = 1, y = 5, z = 5$
13. 50; no
14. $\angle PTC < \angle VPT$
15. cannot be determined
16. Sample:

Given: \overline{GF} is a median of isosceles $\triangle GIJ$.

Prove: $\triangle JGF \cong \triangle IGF$

Proof:

Statements	Reasons
1. \overline{GF} is a median.	1. Given
2. $\overline{FI} \cong \overline{FJ}$	2. Definition of median
3. $\overline{GI} \cong \overline{GJ}$	3. Definition of isosceles
4. $\overline{FG} \cong \overline{FG}$	4. Reflexive Property
5. $\triangle JGF \cong \triangle IGF$	5. SSS Theorem

17. Sample: **Given:** \overline{BF} is a median and a perpendicular bisector of $\triangle BDA$.**Prove:** $\triangle FBA \cong \triangle FBD$ **Proof:**

Statements	Reasons
1. \overline{BF} is a median and a perpendicular bisector of $\triangle BDA$.	1. Given
2. $\overline{AF} \cong \overline{DF}$	2. Definition of median
3. $\angle BFA, \angle BFD$ are right angles.	3. Definition of perpendicular bisector
4. $\angle BFA \cong \angle BFD$	4. All right angles are \cong
5. $\overline{BF} \cong \overline{BF}$	5. Reflexive Property
6. $\triangle FBA \cong \triangle FBD$	6. SAS Theorem

18. city C to city A, city A to city B, city B to city C

If one angle of a triangle has a greater measure than another angle, then the side opposite the greater angle is longer than the side opposite the lesser angle.

19. 6

20. $(-1, \frac{1}{2})$

21. 13

22. $BG = 3, GE = 6$

23. 12

24. \overline{BD}

25. circumcenter

incenter

centroid

orthocenter

26. $\overline{AB}; \overline{AC}; \overline{BC}$ 27. $0 < x < 27$ 28. $5 < x < 18$

29. 2. Reflexive Property

4. Hinge Theorem

30. $x = 2$