

1. What does the Perpendicular Bisector Theorem state? see notes

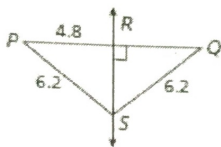
2. Where is the circumcenter of a triangle located? And what is the significance of it? _____

- located an equal distance from vertices (acute-inside, obtuse-outside, right-on)
- each segment that goes from a vertex to a circumcenter has the same length

3. Find each measure.

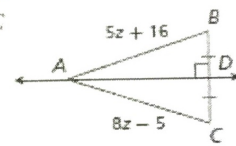
1. PQ

9.6



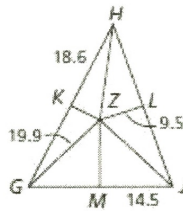
4. 3. AC

51



5. \overline{KZ} , \overline{LZ} , and \overline{MZ} are the perpendicular bisectors of $\triangle GHJ$. Find HZ.

19.9



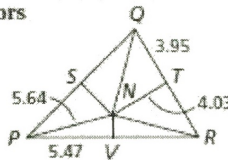
6. \overline{SN} , \overline{TN} , and \overline{VN} are the perpendicular bisectors of $\triangle PQR$. Find each length.

3. NR 5.64

4. RV 5.47

5. TR 3.95

6. QN 5.64



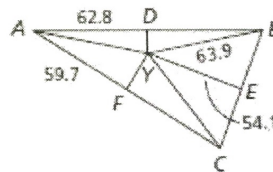
7. \overline{DY} , \overline{EY} , and \overline{FY} are the perpendicular bisectors of $\triangle ABC$. Find each length.

12. CF 59.7

13. YC 63.9

14. DB 62.8

15. AY 63.9



Write the equation in slope-intercept form for the perpendicular bisector of the segment with the given endpoints.

8. (-3, -1) and (7, -5)

① Mid $-\frac{-3+7}{2}, \frac{-1+(-5)}{2} = (2, -3)$

$y = \frac{5}{2}x - 8$

② Slope $-\frac{-1+(-5)}{-3-7} = \frac{4}{-10} = -\frac{2}{5} = -\frac{5}{2}m$

③ Find B $-3 = \frac{5}{2}(2) + b$
 $-3 = 5 + b$ $-8 = b$

9. (6, -5) and (10, 1)

① $\frac{6+10}{2}, \frac{-5+1}{2} = (8, -2)$

$y = -\frac{2}{3}x + \frac{10}{3}$

② $-\frac{-5-1}{6-10} = \frac{-6}{-4} = \frac{3}{2} = -\frac{2}{3}m$

③ $-2 = -\frac{2}{3}(8) + b$
 $-2 = -\frac{16}{3} + b$ $b = \frac{10}{3}$

LESSON
6-2

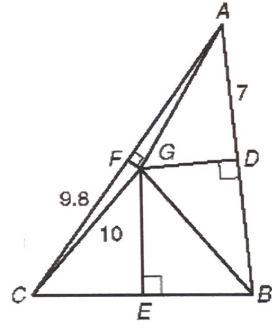
Practice A
Bisectors of Triangles

Fill in the blanks to complete each definition or theorem.

- The circumcenter of a triangle is equidistant from the vertices of the triangle.
- When three or more lines intersect at one point, the lines are said to be concurrent.
- The incenter of a triangle is the point where the three angle bisectors of a triangle are concurrent.
- The incenter of a triangle is equidistant from the sides of the triangle.
- The circumcenter of a triangle is the point where the three perpendicular bisectors of a triangle are concurrent.

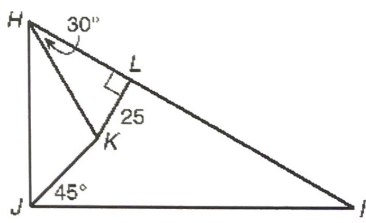
Use the figure for Exercises 6–8. \overline{DG} , \overline{EG} , and \overline{FG} are perpendicular bisectors of $\triangle ABC$. Find each length.

- | | |
|------------------|-----------------|
| 6. AG <u>10</u> | 7. DB <u>7</u> |
| 8. AF <u>9.8</u> | 9. GB <u>10</u> |



Use the figure for Exercises 10–13. \overline{HK} and \overline{JK} are angle bisectors of $\triangle HIJ$. Find each measure.

- the distance from K to \overline{JI} 25
- $m\angle HJK$ 45°
- $m\angle JHK$ 30°
- $m\angle HJI$ 90°



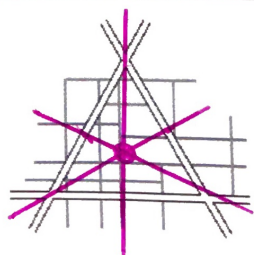
Millsville is a town with three large streets that form a triangle. The town council wants to place a fire station so that it is the same distance from each of the three streets.

- Why would the town council want the fire station equidistant from the large streets?

fire trucks can quickly get to each point

- Tell whether the circumcenter or the incenter of the triangle should be the location of the fire station. incenter

- Bisect each angle of the figure to find the location of the firehouse. You may use a compass and straightedge or a protractor.



Bisect each side
Go through vertices