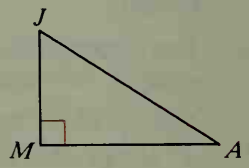
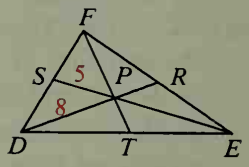
Classroom Exercises

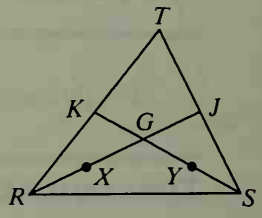
1. Draw, if possible, a triangle in which the perpendicular bisectors of the sides intersect in a point with the location described.
   a. A point inside the triangle **b.** A point outside the triangle
   c. A point on the triangle
2. Repeat Exercise 1, but work with angle bisectors.
3. Is there some kind of triangle such that the perpendicular bisector of each side is also an angle bisector, a median, and an altitude?
4. $\triangle JAM$ is a right triangle.



   a. Is $\overline{JM}$ an altitude of $\triangle JAM$?
   b. Name another altitude shown.
   c. In what point do the three altitudes of $\triangle JAM$ meet?
   d. Where do the perpendicular bisectors of the sides of $\triangle JAM$ meet?
   e. Does your answer to (d) agree with Theorem 10-2?
5. The medians of $\triangle DEF$ are shown. Find the lengths indicated.



   a. EP = ___? **b.** PR = ___?
   c. If $FT = 9$, then PT = ___? and FP = ___?
6. Given: $\overline{RJ}$ and $\overline{SK}$ are medians of $\triangle RST$;
   X and Y are the midpoints of $\overline{RG}$ and $\overline{SG}$.



   a. How are $\overline{XY}$ and $\overline{RS}$ related? Why?
   b. How are $\overline{KJ}$ and $\overline{RS}$ related? Why?
   c. How are $\overline{KJ}$ and $\overline{XY}$ related? Why?
   d. What special kind of quadrilateral is $XYJK$? Why?
   e. Why does $XG = GJ$?
   f. Explain why $RG = \frac{2}{3}RJ$.

Written Exercises

A

1. Draw a triangle such that the lines containing the three altitudes intersect in a point with the location described.
   a. A point inside the triangle **b.** A point outside the triangle
   c. A point on the triangle

Exercises 2–5 refer to the diagram in which the medians of a triangle are shown.

2. Find the values of x and y.
3. If $AB = 6$, then BP = ___? and AP = ___?.
4. If $AB = 7$, then BP = ___? and AP = ___?.
5. If $PB = 1.9$, then AP = ___? and AB = ___?.