(12) Division of a given segment into any number of congruent parts, page 396

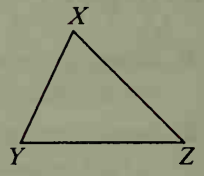
(13) A segment of length x such that $\frac{a}{b} = \frac{c}{x}$ when segments of lengths a, b, and c are given, page 397

(14) A segment whose length is the geometric mean between the lengths of two given segments, page 397

3. Every triangle has these concurrency properties:
   (1) The bisectors of the angles intersect in a point that is equidistant from the three sides of the triangle.
   (2) The perpendicular bisectors of the sides intersect in a point that is equidistant from the three vertices of the triangle.
   (3) The lines that contain the altitudes intersect in a point.
   (4) The medians intersect in a point that is two thirds of the distance from each vertex to the midpoint of the opposite side.
4. A locus is the set of all points, and only those points, that satisfy one or more conditions.
5. A locus that satisfies more than one condition is found by considering all possible intersections of the loci for the separate conditions.

Chapter Review

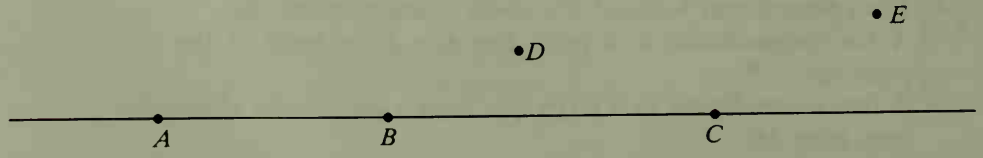
In Exercises 1–3 draw a diagram that is similar to, but larger than, the one shown. Then do the constructions.



10–1

1. Draw any line m. On m construct $\overline{ST}$ such that $ST = 3XY$.
2. Construct an angle with measure equal to $m\angle X + m\angle Z$.
3. Bisect $\angle Y$.

Use a diagram like the one below for Exercises 4–7.



10–2

4. Construct the perpendicular bisector of $\overline{AB}$.
5. Construct the perpendicular to $\overleftrightarrow{AC}$ at C.
6. Construct the perpendicular to $\overleftrightarrow{AC}$ from D.
7. Construct the parallel to $\overleftrightarrow{AC}$ through E.