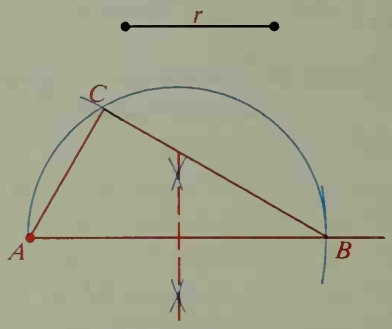
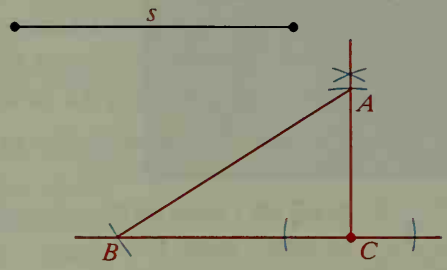
2. Two different solutions, both correct, are shown for the following construction problem. Analyze the diagrams and explain the solutions.

   Given segments with lengths r and s, construct $\triangle ABC$ with $m\angle C = 90$, $AC = r$, and $AB = s$.



First solution



Second solution

Written Exercises

Exercises 1–4 refer to plane figures.

A 1. Draw any $\overline{AB}$ and a segment with length h. Use the following steps to construct the locus of points P such that for every $\triangle APB$ the altitude from P to $\overleftrightarrow{AB}$ would equal h.

   a. Construct a perpendicular to $\overline{AB}$.

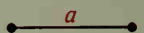
   b. Construct two lines parallel to $\overline{AB}$, h units from $\overline{AB}$.

2. Begin each part of this exercise by drawing any $\overline{CD}$. Then construct the locus of points P that meet the given condition.

   a. $\angle CDP$ is a right angle.

   b. $\angle CPD$ is a right angle. (*Hint*: See Classroom Exercise 2.)

On your paper draw a segment roughly as long as the one shown. Use it in Exercises 3 and 4.



3. Draw an angle XYZ. Construct a circle, with radius a, that is tangent to the sides of $\angle XYZ$. (*Hint*: The center of the circle will be a units from the sides of $\angle XYZ$.)

4. Draw a figure roughly like the one shown. Then construct a circle, with radius a, that passes through N and is tangent to line k. (*Hint*: Construct the locus of points that would, as centers, be the correct distance from k. Also construct the locus of points that would, as centers, be the correct distance from N.)