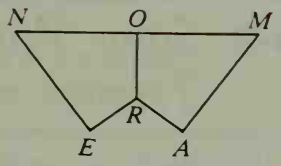
**$\overline{OR}$ is a common side of two congruent quadrilaterals.**



**Exs. 20, 21**

**20.** Complete: quad. $NERO \cong$ quad. $\underline{\quad ? \quad}$

**21.** In your own words explain why each of the following statements must be true.

**a.** $O$ is the midpoint of $\overline{NM}$.

**b.** $\angle NOR \cong \angle MOR$

**c.** $\overline{RO} \perp \overline{NM}$

**22.** Accurately draw each triangle described. Predict whether your triangle will be congruent to your classmates'.

**a.** In $\triangle RST$, $RS = 4$ cm, $m\angle S = 45$, and $ST = 6$ cm.

**b.** In $\triangle UVW$, $m\angle U = 30$, $UV = 5$ cm, and $m\angle V = 100$.

**c.** In $\triangle DEF$, $m\angle D = 30$, $m\angle E = 68$, and $m\angle F = 82$.

**d.** In $\triangle XYZ$, $XY = 3$ cm, $YZ = 5$ cm, and $XZ = 6$ cm. (Try for a reasonably accurate drawing. You may find it helpful to cut a thin strip of paper for each side, then form the triangle.)

**23.** Does congruence of triangles have the reflexive property? the symmetric property? the transitive property?

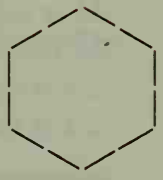
C **24.** Suppose you are given a scalene triangle and a point $P$ on some line $l$. How many triangles are there with one vertex at $P$, another vertex on $l$, and each triangle congruent to the given triangle?

## Challenge

Twelve toothpicks are arranged as shown to form a regular hexagon.

**a.** Copy the figure and show how six more toothpicks of the same size could be used to divide it into three congruent regions.

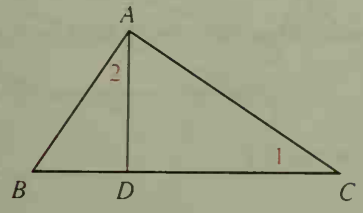
**b.** Keeping two of the toothpicks from part (a) in the same place and moving four, use the six toothpicks to divide the figure into two congruent regions.



## Mixed Review Exercises

**Write proofs in two-column form.**

**1.** Given: $\overline{AD} \perp \overline{BC}$; $\overline{BA} \perp \overline{AC}$
Prove: $\angle 1 \cong \angle 2$




**2.** Given: $\overline{FC}$ and $\overline{SH}$ bisect each other at $A$; $FC = SH$
Prove: $SA = AC$