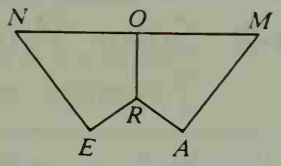
$\overline{OR}$ is a common side of two congruent quadrilaterals.



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?

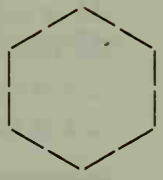
C **24.** Suppose you are given a scalene triangle and a point P on some line l. How many triangles are there with one vertex at P, another vertex on l, and each triangle congruent to the given triangle?

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.

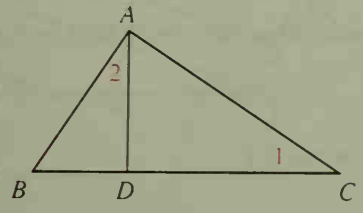
b. Keeping two of the toothpicks from part (a) in the same place and moving four, use the six toothpicks to divide the figure into two congruent regions.



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: $SA = AC$