**7.** Suppose you want to prove that $\triangle RST \sim \triangle XYZ$ by the SSS Similarity Theorem. State the extended proportion you would need to prove first.

8. Suppose you want to prove that $\triangle RST \sim \triangle XYZ$ by the SAS Similarity Theorem. If you know that $\angle R \cong \angle X$, what else would you need to prove?

9. A *pantograph* is a tool for enlarging or reducing maps and drawings. Four bars are pinned together at A, B, C, and D so that $ABCD$ is a parallelogram and points P, D, and E lie on a line. Point P is fixed to the drawing board. To enlarge a figure, the artist inserts a stylus at D and guides the pen or pencil at E so that the stylus traces the original. As E moves, the angles of the parallelogram change, but P, D, and E remain collinear. Suppose PA is 3 units and AB is 7 units.
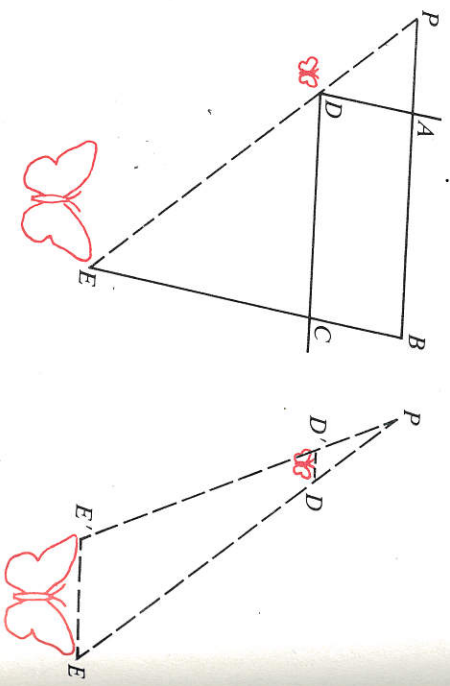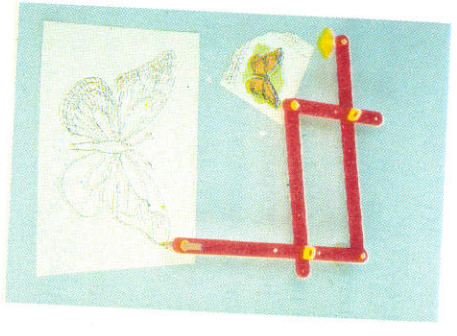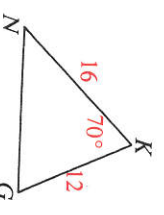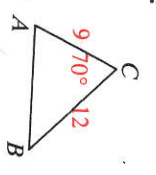
a. Explain why $\triangle PBE \sim \triangle PAD$.
b. What is the ratio of PB to PA?
c. What is the ratio of PE to PD?
d. What is the ratio of the butterfly's wingspan, $E'E$, in the enlargement to its wingspan, $D'D$, in the original?
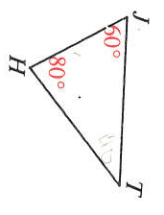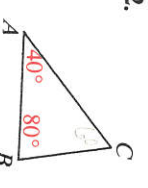
Written Exercises

Name two similar triangles. Also name the postulate or theorem that justifies your answer.

A

1.

2.

One triangle has vertices A, B, and C. Another triangle has vertices P, K, and N. Are two triangles similar? If so, state the similarity and the scale factor.

	AB	BC	AC	PK	KN	PN
7.	6	8	10	9	12	15
8.	6	8	10	15	9	12
9.	6	8	10	25	20	16
10.	12	16	18	20	22.5	15

11. Given: $\dfrac{DE}{GH} = \dfrac{DF}{GI} = \dfrac{EF}{HI}$
Prove: $\angle E \cong \angle H$

12. Given: $\dfrac{DE}{GH} = \dfrac{EF}{HI}$; $\angle E \cong \angle H$
Prove: $\dfrac{EF}{HI} = \dfrac{DF}{GI}$

B

13. Given: $\dfrac{JL}{NL} = \dfrac{KL}{ML}$
Prove: $\angle J \cong \angle N$

14. Given: $\dfrac{AB}{SR} = \dfrac{BC}{RA} = \dfrac{CA}{AS}$
Prove: $BC \parallel AR$

15. Given: $\dfrac{VW}{VX} = \dfrac{VZ}{VY}$
Prove: $\overline{WZ} \parallel \overline{XY}$

16. Given: $\dfrac{VW}{VY} = \dfrac{VZ}{VX}$
Which one(s) of the following *must* be true?
(1) $\triangle VWZ \sim \triangle VXY$ (2) $\overline{WZ} \parallel \overline{XY}$ (3) $\angle 1 \cong \angle Y$