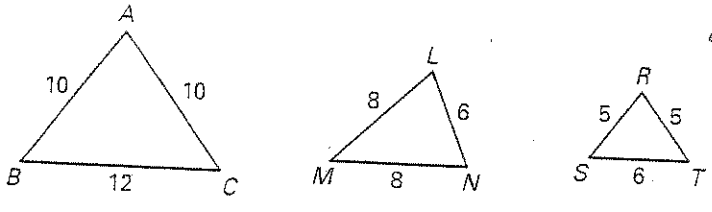


Adv. Geometry 6.5 $\Delta \sim$ by SSS, SAS

Key

Is either ΔLMN or ΔRST similar to ΔABC ?

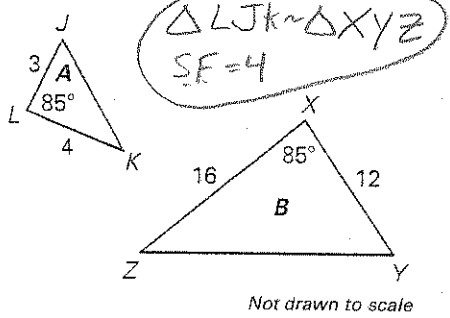
1.



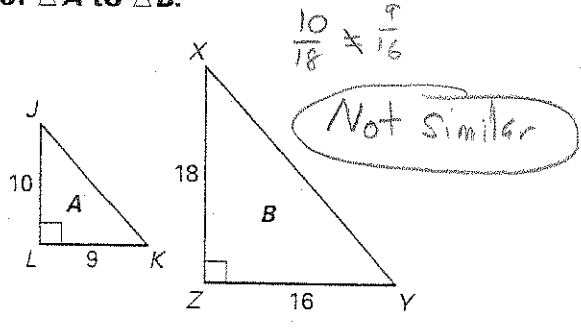
$\Delta RST \sim \Delta ABC$

Determine whether the two triangles are similar. If they are similar, write a similarity statement and find the scale factor of ΔA to ΔB .

3.

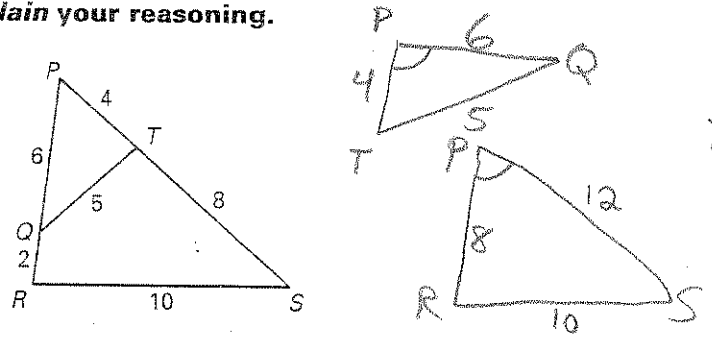


4.



Show that the triangles are similar and write a similarity statement. Explain your reasoning.

6.



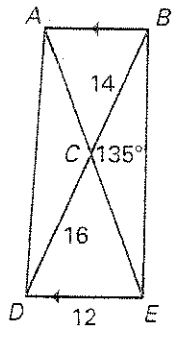
$\frac{4}{8} = \frac{5}{10} = \frac{6}{12}$
 $\angle P = \angle P$
 $\Delta PQT \sim \Delta PSR$ by SAS

or

$\frac{4}{8} = \frac{5}{10} = \frac{6}{12}$
 $\Delta PQT \sim \Delta PSR$ by SSS

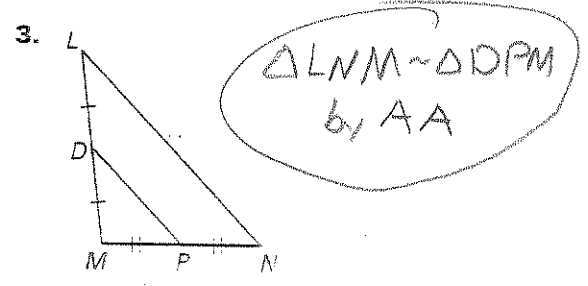
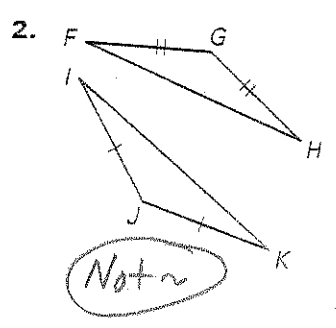
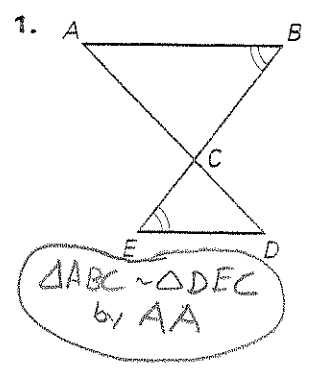
In Exercises 11-14, use the diagram at the right to copy and complete the statement.

- $\Delta ABC \sim ? \Delta EDC$
- $m\angle DCE = ? 45^\circ$
- $AB = ? \frac{21}{2} = 10.5$
- $m\angle CAB + m\angle ABC = ? 135^\circ$

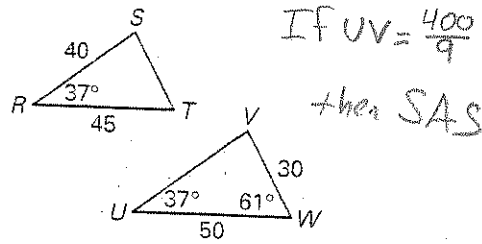
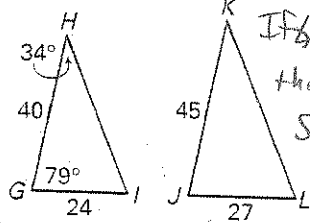
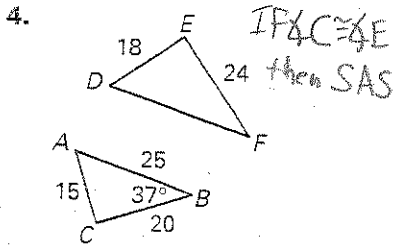


$\frac{14}{16} = \frac{x}{21}$
 $\frac{12 \cdot 14}{16} = x$
 $\frac{4 \cdot 3 \cdot 7}{4 \cdot 2 \cdot 2} = \frac{21}{2}$

Are the triangles similar? If so, state the similarity and the postulate or theorem that justifies your answer.



The figure does not have enough information to verify that the triangles are similar. Describe a postulate or theorem and one additional marking that could be added to the figure to show similarity.



Use the diagram shown to complete the statement.

10. $m\angle DGE = ?$ 45°

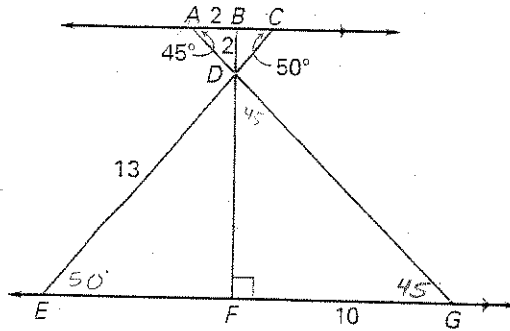
11. $m\angle EDG = ?$ 85°

12. $FD = ?$ 10

13. $GD = ?$ $10\sqrt{2}$

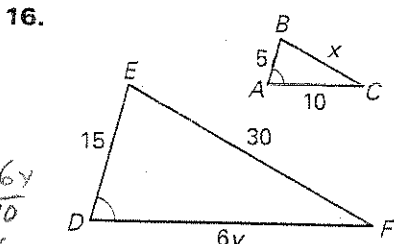
14. $EG = ?$ $10 + \sqrt{69}$

15. Name three pairs of triangles $\triangle ABD \sim \triangle GFD$ that are similar in the figure. $\triangle CBD \sim \triangle EFD$



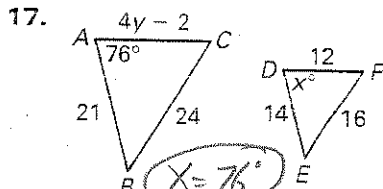
$\triangle ACD \sim \triangle GED$

Find the values of the variables that make $\triangle ABC \sim \triangle DEF$.

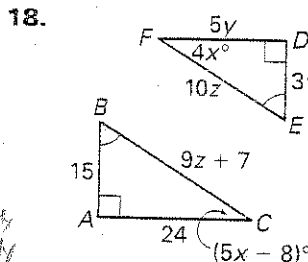


$\frac{15}{5} = \frac{6y}{10}$
 $30 = 6y$
 $5 = y$

$\frac{15}{5} = \frac{30}{x}$
 $3 = \frac{30}{x}$
 $x = 10$



$\frac{21}{14} = \frac{4y-2}{12}$
 $\frac{3}{2} = \frac{4y-2}{12}$
 $36 = 4y-2$
 $38 = 4y$
 $9.5 = y$



$\frac{15}{3y+0.5} = \frac{24}{5y}$
 $75y = 72y + 12$
 $3y = 12$
 $y = 4$

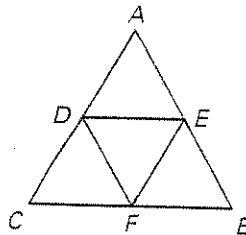
$4x = 5x - 8$
 $8 = x$

$\frac{24}{20} = \frac{9z+7}{10z}$
 $240z = 180z + 70$
 $60z = 70$
 $z = \frac{7}{6}$

Write a two column or paragraph proof.

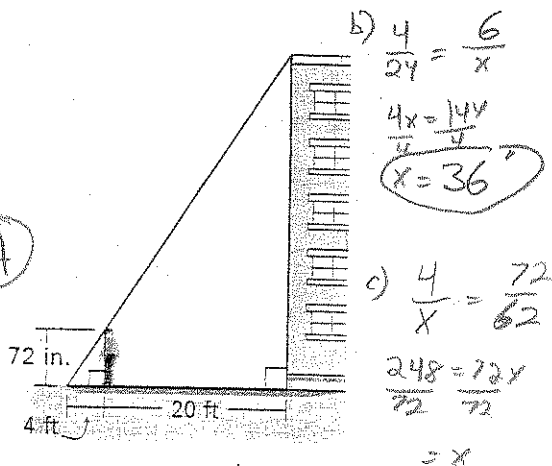
19. GIVEN: $\triangle ABC$ is equilateral.
 \overline{DE} , \overline{DF} , and \overline{EF} are midsegments.

PROVE: $\triangle ABC \sim \triangle FED$
 $DE = \frac{1}{2}CB$ $DF = \frac{1}{2}AB$ $EF = \frac{1}{2}AC$
 $\frac{DE}{CB} = \frac{1}{2}$ $\frac{DF}{AB} = \frac{1}{2}$ $\frac{EF}{AC} = \frac{1}{2}$
 $\triangle ABC \sim \triangle FED$ by SSS



21. Indirect Measurement A painter is preparing an estimate to paint a building. To approximate the building's height, he stands so that the tip of his shadow coincides with that of the building. The painter uses the measurements shown in the figure.

- What postulate or theorem can you use to show that the triangles are similar?
- Approximate the height of the building.
- The painter's partner is standing in the sun. She is 62 inches tall. How long is her shadow?



AA

$\frac{4}{20} = \frac{62}{x}$
 $4x = 1240$
 $x = 310$

$\frac{4}{x} = \frac{72}{62}$
 $248 = 72x$
 $\frac{248}{72} = x$
 $x = 3.44'$