

LESSON 6.5

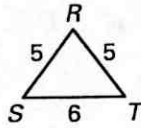
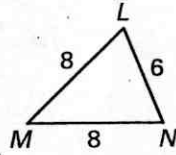
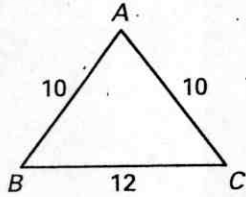
Practice

For use with pages 388-395

SSS, SAS

Is either $\triangle LMN$ or $\triangle RST$ similar to $\triangle ABC$?

1.



$\triangle RST \sim \triangle ABC$

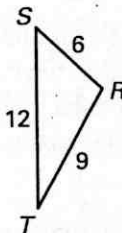
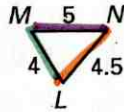
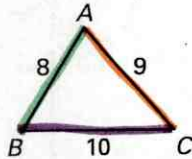
$\triangle LMN \sim \triangle ABC$

$$\frac{LM}{AB} = \frac{MN}{BC} = \frac{LN}{AC}$$

$$\frac{8}{10} = \frac{6}{12} = \frac{6}{10}$$

$$\frac{4}{5} \quad \frac{2}{3} \quad \frac{3}{5}$$

2.



$\triangle ABC \sim \triangle LNM$

$$\frac{8}{4} = \frac{9}{4.5} = \frac{10}{5}$$

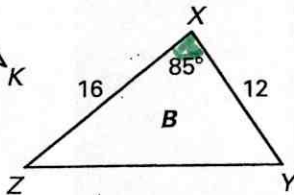
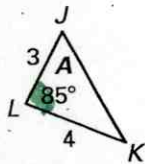
$$\frac{2}{1} = \frac{2}{1} = \frac{2}{1} \checkmark$$

$$\frac{8}{6} = \frac{9}{9} = \frac{10}{12}$$

$$\frac{4}{3} = 1 = \frac{5}{6} \times$$

Determine whether the two triangles are similar. If they are similar, write a similarity statement and find the scale factor of $\triangle A$ to $\triangle B$.

3.



Not drawn to scale

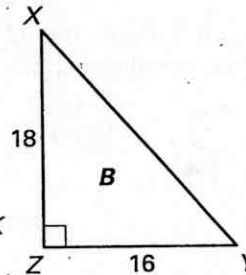
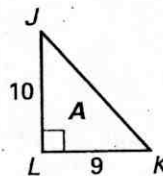
$$\frac{JL}{XY} = \frac{LK}{XZ}$$

$$\frac{3}{12} = \frac{4}{16} \rightarrow \frac{1}{4} \checkmark$$

scale factor 1:4

$\triangle JKL \sim \triangle XYZ$
SAS

4.

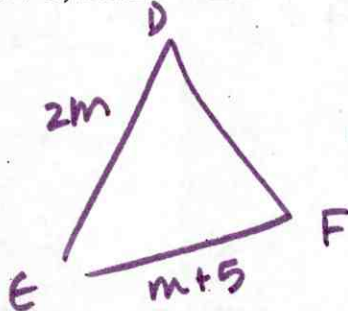
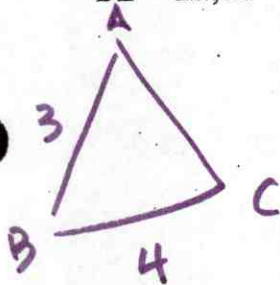


$$\frac{10}{18} = \frac{9}{16}$$

$$\frac{5}{9} = \frac{9}{16} \times$$

NO

5. Algebra Find the value of m that makes $\triangle ABC \sim \triangle DEF$ when $AB = 3$, $BC = 4$, $DE = 2m$, $EF = m + 5$, and $\angle B \cong \angle E$.



$$\frac{3}{2m} = \frac{4}{m+5}$$

$$3(m+5) = 4(2m)$$

$$3m+15 = 8m$$

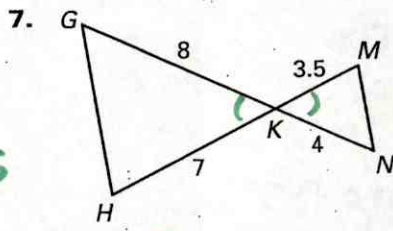
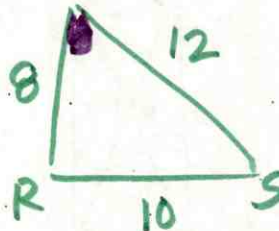
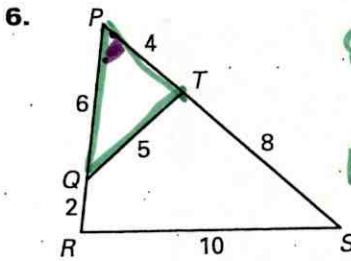
$$15 = 5m$$

$$m = 3$$

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Practice *continued*
For use with pages 388-395

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



$$\frac{PT}{PR} = \frac{QT}{RS} = \frac{PQ}{PS}$$

$$\frac{4}{8} = \frac{5}{10} = \frac{6}{12} \quad \left(\frac{1}{2}\right) \checkmark$$

$\triangle PQT \sim \triangle PSR$
SSS

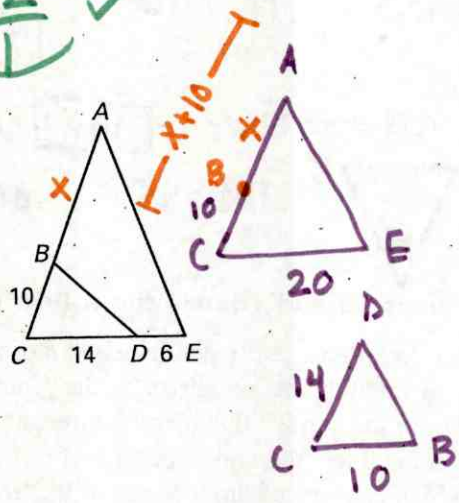
$$\frac{8}{4} = \frac{7}{3.5}$$

$$\frac{2}{1} \checkmark$$

$\triangle GKH \sim \triangle NKM$
SAS

8. Multiple Choice In the diagram at the right, $\triangle ACE \sim \triangle DCB$. Find the length of AB .

- A. 12
- B. 18
- C. $\frac{35}{2}$
- D. $\frac{30}{7}$



$$\frac{AC}{DC} = \frac{CE}{CB} \Rightarrow \frac{10}{14} = \frac{20}{10}$$

$$\frac{x+10}{20} = \frac{14}{10}$$

$$10(x+10) = 14(20)$$

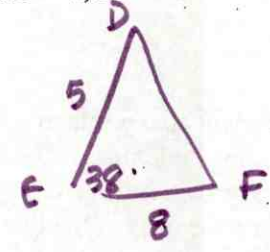
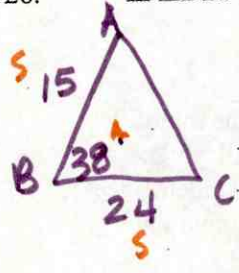
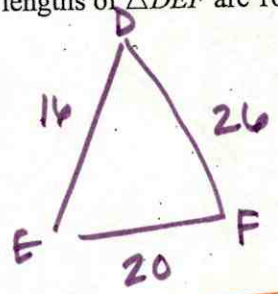
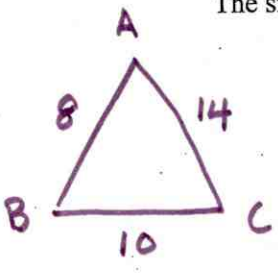
$$10x + 100 = 280$$

$$10x = 180$$

$$x = 18$$

Sketch the triangles using the given description. Explain whether the two triangles can be similar.

9. The side lengths of $\triangle ABC$ are 8, 10 and 14. The side lengths of $\triangle DEF$ are 16, 20 and 26.
10. In $\triangle ABC$, $AB = 15$, $BC = 24$ and $m\angle B = 38^\circ$. In $\triangle DEF$, $DE = 5$, $EF = 8$ and $m\angle E = 38^\circ$.



$$\frac{8}{16} = \frac{10}{20} = \frac{14}{26}$$

$$\frac{1}{2} = \frac{1}{2} = \frac{7}{13} \quad \times$$

NO CORR. sides are not proportional

$$\frac{15}{5} = \frac{24}{8}$$

$$\frac{3}{1} = \frac{3}{1} \checkmark$$

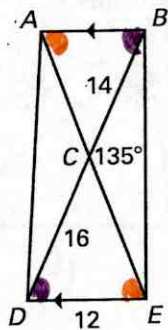
yes by SAS

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Practice *continued*

For use with pages 388-395

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

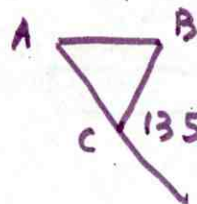
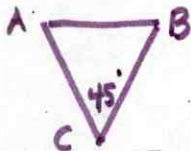


11. $\triangle ABC \sim ? \triangle EDC$

12. $m\angle DCE = ?$ $180 - 135$
 $= 45$ by LP

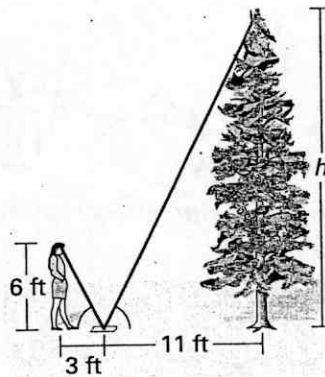
13. $AB = ?$
 $AB = 10.5$ $\frac{x}{12} = \frac{14}{16}$ $16x = 168$
 $x = 10.5$

14. $m\angle CAB + m\angle ABC = ?$ 135 . A sum
 $180 - 45$ are ext. angles Thm.



In Exercises 15 and 16, use the following information.

Pine Tree In order to estimate the height h of a tall pine tree, a student places a mirror on the ground and stands where she can see the top of the tree, as shown. The student is 6 feet tall and stands 3 feet from the mirror which is 11 feet from the base of the tree.



15. What is the height h (in feet) of the pine tree?

16. Another student also wants to see the top of the tree. The other student is 5.5 feet tall. If the mirror is to remain 3 feet from the student's feet, how far from the base of the tree should the mirror be placed?