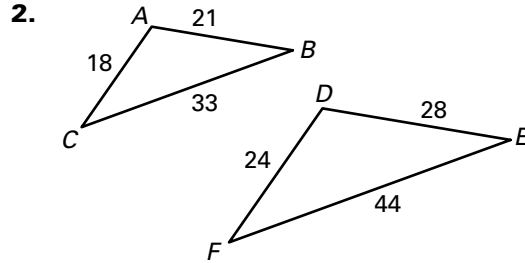
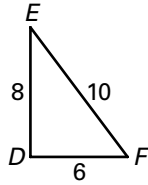
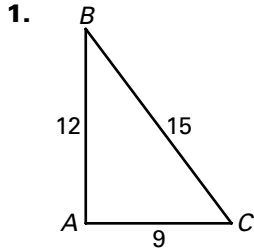


**LESSON**  
**6.5**

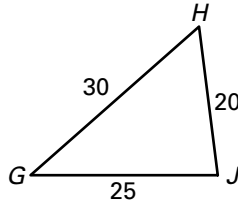
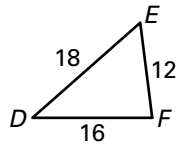
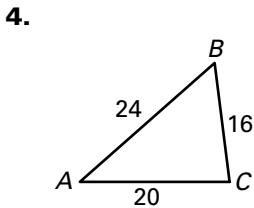
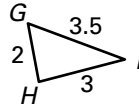
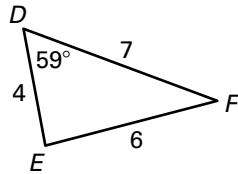
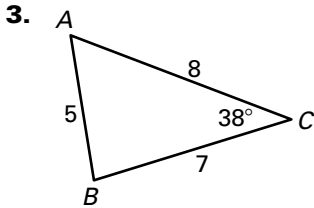
**Practice A**

For use with pages 406–413

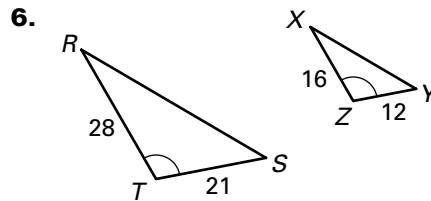
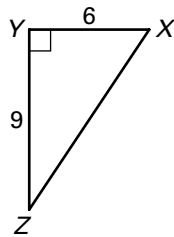
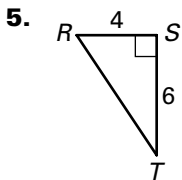
Verify that  $\triangle ABC \sim \triangle DEF$ . Find the scale factor of  $\triangle ABC$  to  $\triangle DEF$ .



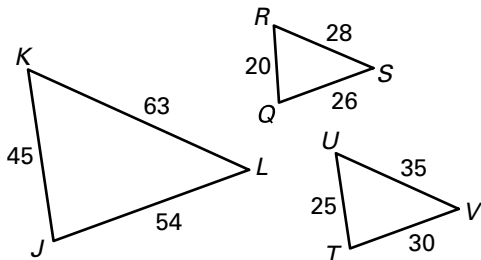
Determine which two of the three triangles are similar. Find the scale factor for the pair.



Verify that  $\triangle RST \sim \triangle XYZ$ . Find the scale factor of  $\triangle RST$  to  $\triangle XYZ$ .



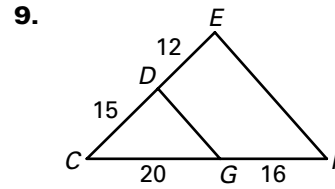
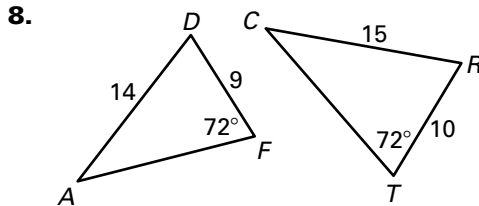
7. Determine which two of the three triangles are similar. Find the scale factor for the pair.



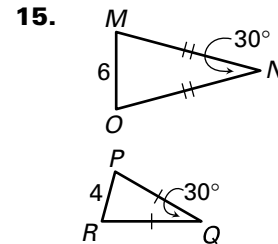
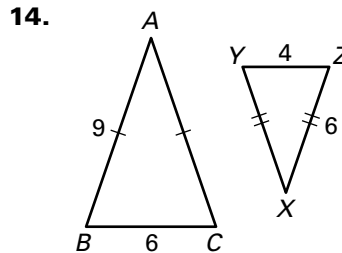
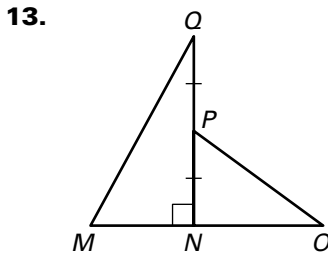
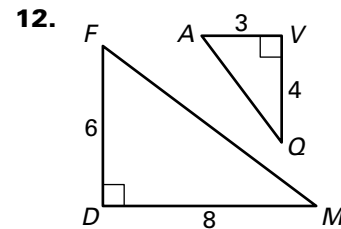
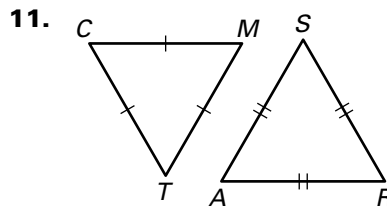
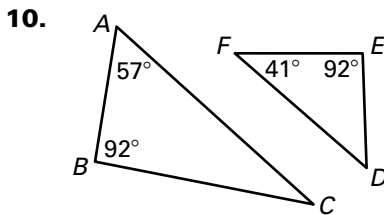
**LESSON 6.5**

**Practice A** *continued*  
For use with pages 406–413

**Is there enough information to determine whether the triangles are similar? If so, write a similarity statement and find the scale factor.**



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



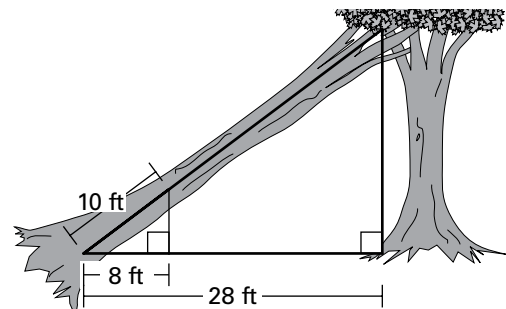
**Sketch the triangles using the given description. Explain whether the two triangles can be similar.**

16. In  $\triangle ABC$ ,  $m\angle B = 60^\circ$ ,  $AB = 6$ , and  $BC = 12$ .  
In  $\triangle XYZ$ ,  $m\angle Y = 60^\circ$ ,  $XY = 3$ , and  $YZ = 6$ .

17. In  $\triangle ABC$ ,  $m\angle A = 15^\circ$  and  $m\angle B = 80^\circ$ .  
In  $\triangle XYZ$ ,  $m\angle Y = 80^\circ$  and  $m\angle Z = 85^\circ$ .

18. **Fallen Tree** A large tree has fallen against another tree and rests at an angle as shown in the figure. To estimate the length of the tree from the ground, you make the measurements shown in the figure.

- What theorem or postulate can be used to show that the triangles in the figure are similar?
- Explain how you can use similar triangles to estimate the length of the tree. Then estimate the length.



## Lesson 6.4, continued

Statements	Reasons
3. $\overline{WY} \cong \overline{WY}$	3. Reflexive Prop. of Cong.
4. $\triangle YZW \cong \triangle WXY$	4. ASA
5. $\angle VZU \cong \angle YZW$	5. Vert. Angles Cong. Theorem
6. $\angle UVZ \cong \angle WYZ$	6. Alt. Int. Angles Theorem
7. $\triangle VZU \sim \triangle YZW$	7. AA Sim. Post.
8. $\triangle VZU \sim \triangle WXY$	8. Transitive Property

## Lesson 6.5

### Practice Level A

1.  $\frac{AB}{DE} = \frac{12}{8} = \frac{3}{2}$ ,  $\frac{AC}{DF} = \frac{9}{6} = \frac{3}{2}$ ,  $\frac{BC}{EF} = \frac{15}{10} = \frac{3}{2}$ ,

so  $\triangle ABC \sim \triangle DEF$  by SSS Similarity Thm.;

Scale factor:  $\frac{3}{2}$

2.  $\frac{AB}{DE} = \frac{21}{28} = \frac{3}{4}$ ,  $\frac{AC}{DF} = \frac{18}{24} = \frac{3}{4}$ ,  $\frac{BC}{EF} = \frac{33}{44} = \frac{3}{4}$ ,

so  $\triangle ABC \sim \triangle DEF$  by SSS Similarity Thm.;

Scale factor:  $\frac{3}{4}$  3.  $\triangle DEF \sim \triangle GHI$ ;  $\frac{2}{1}$

4.  $\triangle ABC \sim \triangle GHJ$ ;  $\frac{4}{5}$

5.  $\frac{RS}{XY} = \frac{4}{6} = \frac{2}{3}$ ,  $\frac{ST}{YZ} = \frac{6}{9} = \frac{2}{3}$ , so two pairs of sides

are proportional. Because the included angles  $\angle S$  and  $\angle Y$  are right angles, they are congruent. Therefore,  $\triangle RST \sim \triangle XYZ$  by SAS Similarity

Thm.; scale factor:  $\frac{2}{3}$

6.  $\frac{RT}{XZ} = \frac{28}{16} = \frac{7}{4}$ ,  $\frac{ST}{YZ} = \frac{21}{12} = \frac{7}{4}$ , so two pairs of

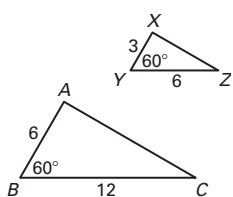
sides are proportional, and their included angles are congruent ( $\angle T \cong \angle Z$ ). Therefore,  $\triangle RST \sim \triangle XYZ$  by SAS Similarity Thm.;

scale factor:  $\frac{7}{4}$  7.  $\triangle JKL \sim \triangle TUV$ ;  $\frac{9}{5}$  8. no

9. yes;  $\triangle CDG \sim \triangle CEF$ ;  $\frac{5}{9}$  10. no

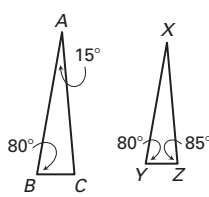
11. yes; SSS Similarity Thm. 12. yes; SAS Similarity Thm. 13. no 14. yes; SSS Similarity Thm. 15. yes; AA Similarity Post.

16.



SAS Similarity Thm

17.

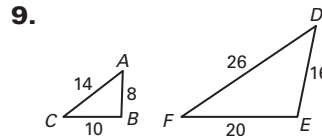


AA Similarity Post.

18. a. AA Similarity Post. b. Sample answer: Use the similar triangles to set up the proportion  $\frac{l}{10} = \frac{28}{8}$ ; 35 ft

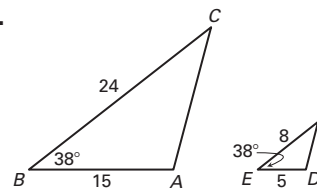
### Practice Level B

1.  $\triangle RST$  2.  $\triangle LMN$  3.  $\triangle JLK \sim \triangle YXZ$ ; 1 : 4  
4. not similar 5. 3 6.  $\triangle PQT \sim \triangle PSR$ ; SSS Similarity Theorem 7.  $\triangle KNM \sim \triangle KGH$ ; SAS Similarity Theorem 8. B



$\triangle ABC$  cannot be similar to  $\triangle DEF$  because not all corresponding sides are proportional.

10.



$\triangle ABC \sim \triangle DEF$ ; SAS Similarity Theorem

11.  $\triangle EDC$  12.  $45^\circ$  13. 10.5

14.  $135^\circ$  15. 22 ft 16. 12 ft

### Practice Level C

1. yes;  $\triangle ABC \sim \triangle DEC$  by AA 2. no

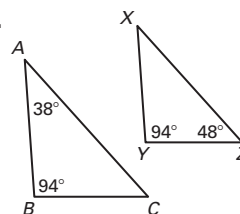
3. yes;  $\triangle LMN \sim \triangle DMP$  by SAS

4. Mark  $DF$  as 30 to use SSS.

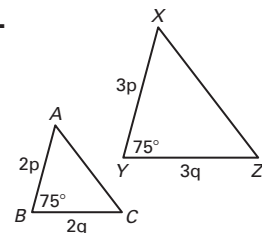
5. Mark  $m\angle J$  as  $79^\circ$  to use SAS.

6. Mark  $UV$  as  $44\frac{4}{9}$  to use SAS.

7.

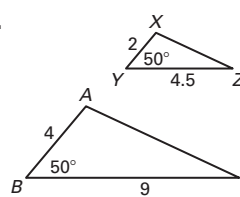


8.



AA Similarity Post. SAS Similarity Thm.

9.



SAS Similarity Thm.

10.  $45^\circ$  11.  $85^\circ$  12. 10 13.  $10\sqrt{2}$