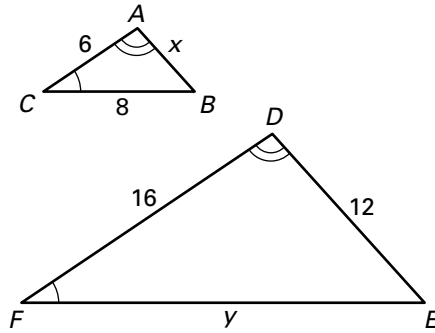


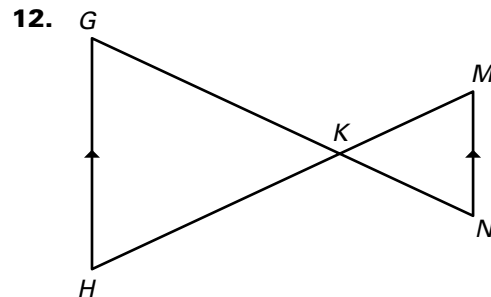
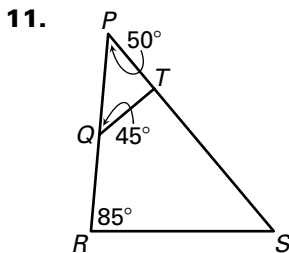
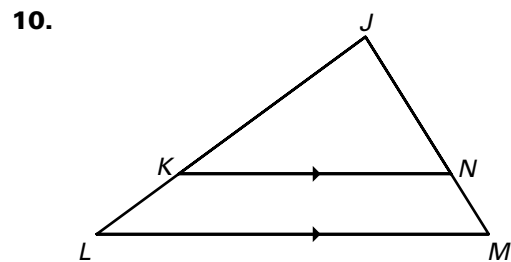
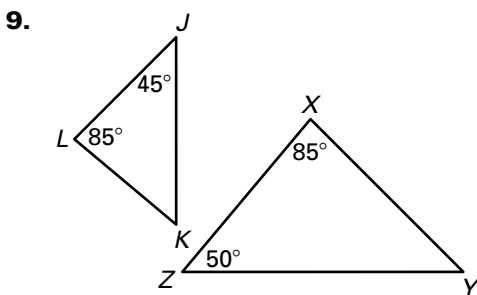
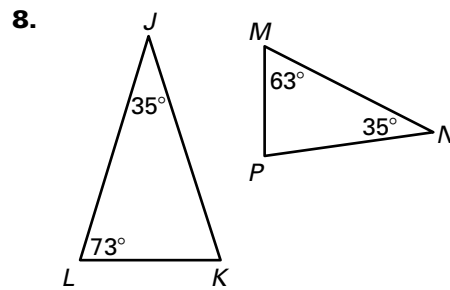
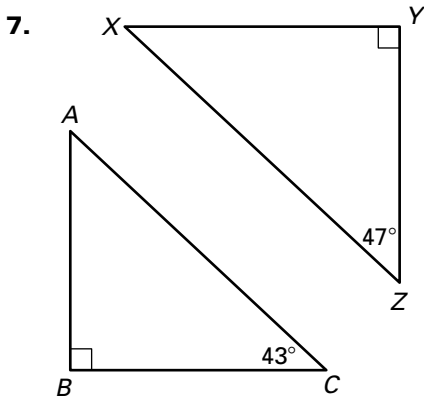
LESSON 6.4 **Practice B**
For use with pages 399–405

Use the diagram to complete the statement.

1. $\triangle ABC \sim$?
2. $\frac{AB}{?} = \frac{?}{EF} = \frac{CA}{?}$
3. $\angle B \cong$?
4. $\frac{?}{12} = \frac{8}{?}$
5. $x =$?
6. $y =$?



Determine whether the triangles are similar. If they are, write a similarity statement.



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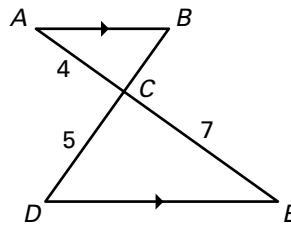
LESSON 6.4

Practice B *continued*

For use with pages 399–405

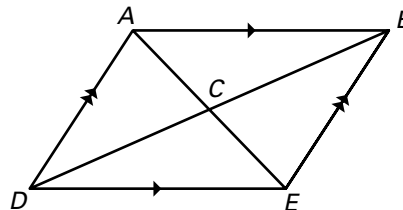
13. Multiple Choice In the diagram at the right, find the length of \overline{BC} .

- A. $\frac{28}{5}$
- B. 6
- C. 3
- D. $\frac{20}{7}$



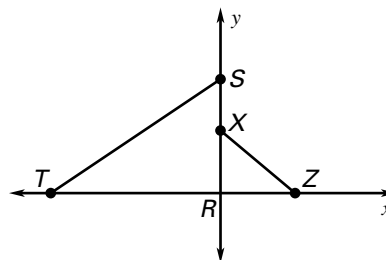
In Exercises 14–17, use the diagram at the right.

- 14. List three pairs of congruent angles.
- 15. Name two pairs of similar triangles and write a similarity statement for each.
- 16. Is $\triangle ACD \sim \triangle BCE$?
- 17. Is $\triangle AED \cong \triangle EAB$?



In Exercises 18–21, use the diagram at the right. Find the coordinates of point Z so that $\triangle RST \sim \triangle RXZ$.

- 18. $R(0, 0), S(0, 4), T(-8, 0), X(0, 2), Z(x, y)$
- 19. $R(0, 0), S(0, 6), T(-6, 0), X(0, 2), Z(x, y)$
- 20. $R(0, 0), S(0, 10), T(-20, 0), X(0, 6), Z(x, y)$
- 21. $R(0, 0), S(0, 7), T(-9, 0), X(0, 4), Z(x, y)$



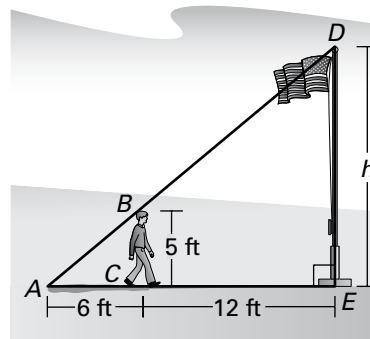
22. Multiple Choice Triangles ABC and DEF are right triangles that are similar. \overline{AB} and \overline{BC} are the legs of the first triangle. \overline{DE} and \overline{EF} are the legs of the second triangle. Which of the following is false?

- A. $\angle A \cong \angle D$
- B. $AC = DF$
- C. $\frac{AC}{DF} = \frac{AB}{DE}$

In Exercises 23–25, use the following information.

Flag Pole In order to estimate the height h of a flag pole, a 5 foot tall male student stands so that the tip of his shadow coincides with the tip of the flag pole's shadow. This scenario results in two similar triangles as shown in the diagram.

- 23. Why are the two overlapping triangles similar?
- 24. Using the similar triangles, write a proportion that models the situation.
- 25. What is the height h (in feet) of the flag pole? Check that your answer is reasonable.



Lesson 6.3, continued

7. Yes; *Sample answer*: The side lengths are given (or can be determined by addition); trapezoid $ABGF \sim$ trapezoid $ACDE$; Scale factor of the side lengths of trapezoid $ABGF$ to trapezoid $ACDE$ is 1 : 2.

Focus On 6.3

Practice

- 987, 1597, 2584, 4181
- 6765, 10,946, 17,711, 28,657
- 46,368, 75,025, 121,393, 196,418
- 317,811, 514,229, 832,040, 1,346,269
- $\frac{1597}{987} \approx 1.6180$, $\frac{2584}{1597} \approx 1.6180$,
 $\frac{4181}{2584} \approx 1.6180$
- $\frac{10,946}{6765} \approx 1.6180$, $\frac{17,711}{10,946} \approx 1.6180$,
 $\frac{28,657}{17,711} \approx 1.6180$
- 12, 16, 28, 44, 72, 116
- $\frac{16}{12} \approx 1.3333$, $\frac{28}{16} = 1.75$, $\frac{44}{28} \approx 1.5714$,
 $\frac{72}{44} \approx 1.6363$, $\frac{116}{72} \approx 1.6111$
- Check drawings; The ratios of length to width should be close to the golden ratio.
- 102,334,155; 12,586,269,025;
1,548,008,755,920

Review for Mastery

- 13, 21, 34, 55
- 89, 144, 233, 377
- $\frac{21}{13} \approx 1.6154$; $\frac{34}{21} \approx 1.6190$; $\frac{55}{34} \approx 1.6176$
- $\frac{144}{89} \approx 1.6180$; $\frac{233}{144} \approx 1.6181$; $\frac{377}{233} \approx 1.6180$
- Check drawings; The ratios of length to width should be close to the golden ratio.

Lesson 6.4

Practice Level A

- $\triangle GHI$ 2. GI, HI, GH 3. x 4. 8
- $13\frac{1}{3}$ 6. $10\frac{2}{3}$
- A and B; $\triangle EFG$ is a 30° - 60° - 90° triangle.
- A and B; $\triangle EFG$ is a 40° - 70° - 70° triangle.
- not similar 10. similar
- cannot be determined 12. similar
- yes; $\triangle NMO \sim \triangle QRP$; both are 38° - 71° - 71° \triangle

- not enough information to determine
- yes; $\triangle DFG \sim \triangle RST$; both are 60° - 60° - 60° \triangle
- yes; $\triangle ABE \sim \triangle DBC$; both are 28° - 62° - 90° \triangle
- yes; $\triangle XYW \sim \triangle ZYV$; There are two pairs of \cong alt. int. \sphericalangle s and one pair of \cong vertical \sphericalangle s.
- yes; $\triangle SRT \sim \triangle SQU$; There are two pairs of \cong corresponding \sphericalangle s and $\angle S \cong \angle S$.
- By the markings, $\angle N \cong \angle X$ and $\angle T \cong \angle Y$, so $\triangle NMT \sim \triangle XBY$ by the AA Similarity Post.
- $\angle A \cong \angle A$ by the Reflexive Prop. Because $\overline{BD} \parallel \overline{CE}$, $\angle ABD \cong \angle C$ by the Corr. Angles Post. So, $\triangle ABD \sim \triangle ACE$ by the AA Similarity Post.
- Because $\overline{HG} \parallel \overline{IL}$ and $\overline{GJ} \parallel \overline{LK}$, $\angle H \cong \angle LIK$ and $\angle GJK \cong \angle K$ by the Corr. Angles Post. So, $\triangle HGJ \sim \triangle ILK$ by the AA Similarity Post.
- You are given that \overline{DE} is a midsegment of $\triangle ABC$. Then $\overline{DE} \parallel \overline{AC}$ by the Midsegment Thm., which means that $\angle A \cong \angle BDE$ and $\angle C \cong \angle BED$ by the Corr. Angles Post. Therefore, $\triangle ABC \sim \triangle DBE$ by the AA Similarity Post.
- $37\frac{1}{3}$ ft

Practice Level B

- $\triangle DEF$ 2. DE, BC, FD 3. $\angle E$ 4. x, y
- $\frac{9}{2}$ 6. $\frac{64}{3}$ 7. $\triangle ABC \sim \triangle ZYX$ 8. not similar
- $\triangle JLK \sim \triangle YXZ$ 10. $\triangle JNK \sim \triangle JML$
- $\triangle PTQ \sim \triangle PRS$ 12. $\triangle KGH \sim \triangle KNM$
- D 14. *Sample answer*: $\angle BAE \cong \angle DEA$, $\angle DCA \cong \angle BCE$, $\angle ADB \cong \angle EBD$
- Sample answer*: $\triangle CAB \sim \triangle CED$, $\triangle ABD \sim \triangle EDB$ 16. no 17. yes 18. (4, 0)
- (2, 0) 20. (12, 0) 21. $(\frac{36}{7}, 0)$ 22. B
- Both triangles are right triangles and have $\angle A$ in common. Because both triangles have two congruent angles, the triangles are similar.
- $\frac{h}{5} = \frac{18}{6}$ 25. 15 ft

Practice Level C

- similar 2. cannot be determined 3. similar
- not enough information
- $\triangle LMN \sim \triangle HGD$; both are 18° - 72° - 90° \triangle
- $\triangle XTR \sim \triangle KAJ$ by the AA Similarity Post.
- $\triangle QNM \sim \triangle PNO$ by the AA Similarity Post.