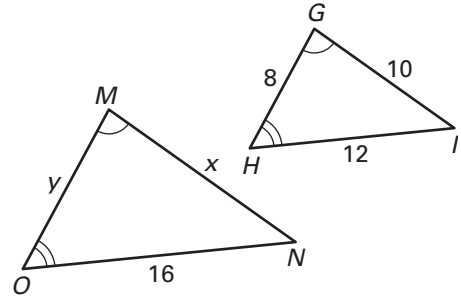


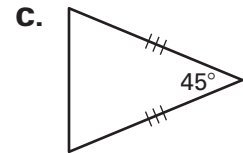
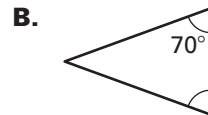
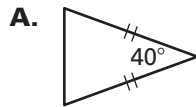
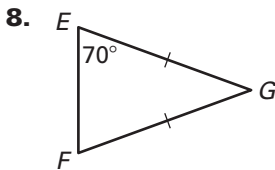
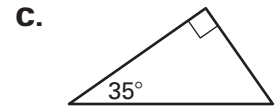
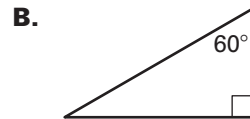
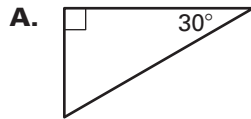
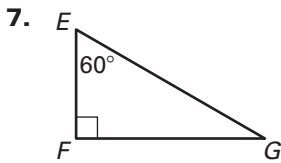
LESSON 6.4 **Practice A**
For use with pages 399–405

Use the diagram to complete the statement.

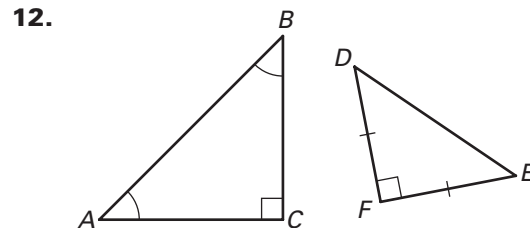
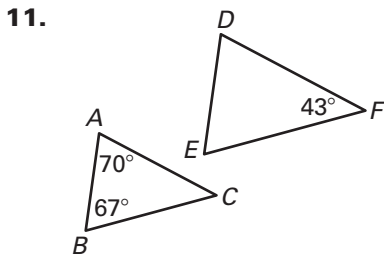
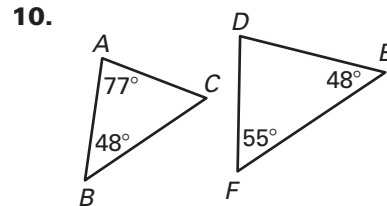
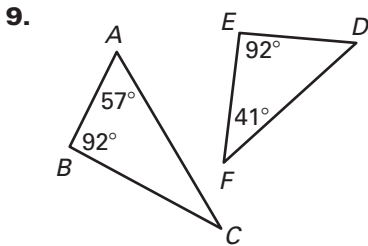
1. $\triangle MON \sim$?
2. $\frac{MN}{?} = \frac{ON}{?} = \frac{MO}{?}$
3. $\frac{16}{12} = \frac{?}{10}$
4. $\frac{12}{16} = \frac{?}{y}$
5. $x =$?
6. $y =$?



Which triangles are similar to $\triangle EFG$? Explain.



Determine whether $\triangle ABC$ and $\triangle DEF$ are similar, not similar, or cannot be determined from the information given in the figure.

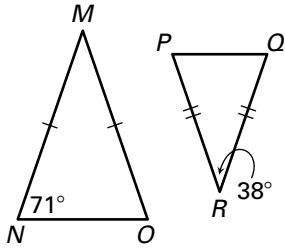


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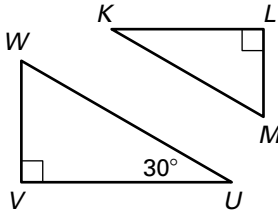
LESSON 6.4 **Practice A** *continued*
For use with pages 399–405

Determine whether the triangles can be proved similar. If they are similar, write a similarity statement. Explain your reasoning.

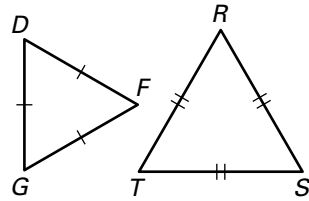
13.



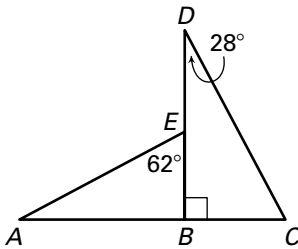
14.



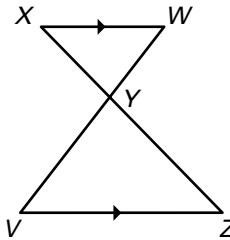
15.



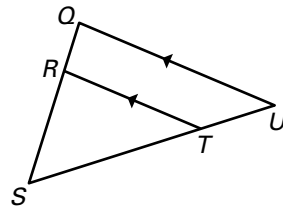
16.



17.

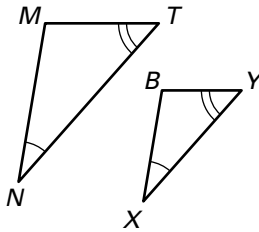


18.

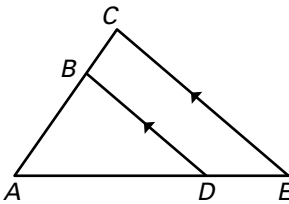


Show that the triangles are similar.

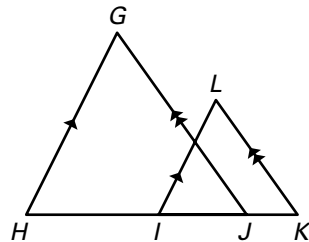
19.



20.



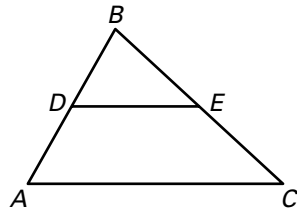
21.



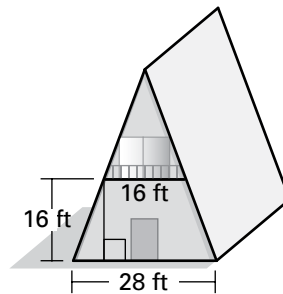
22. **Proof** Write a two-column or paragraph proof.

GIVEN: \overline{DE} is a midsegment of $\triangle ABC$.

PROVE: $\triangle ABC \sim \triangle DBE$



23. **A-Frame** The A-frame building shown in the figure has a balcony that is 16 feet long, 16 feet high, and parallel to the ground. The building is 28 feet wide at its base. How tall is the A-frame building? 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; $\triangle XYW \sim \triangle ZYW$; 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.