

Chapter 7 Geometry Sample**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

_____ 1. If $\frac{g}{h} = \frac{6}{5}$, which equation must be true?

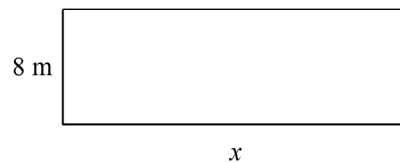
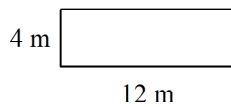
a. $5h = 6g$

b. $\frac{h}{g} = \frac{5}{6}$

c. $\frac{h}{6} = \frac{g}{5}$

d. $gh = 6 \times 5$

_____ 2. The two rectangles are similar. Which is a correct proportion for corresponding sides?



a. $\frac{12}{8} = \frac{x}{4}$

b. $\frac{12}{4} = \frac{x}{8}$

c. $\frac{12}{4} = \frac{x}{20}$

d. $\frac{4}{12} = \frac{x}{8}$

Short Answer

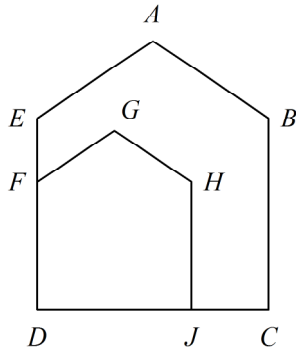
3. The Sears Tower in Chicago is 1450 feet high. A model of the tower is 24 inches tall. What is the ratio of the height of the model to the height of the actual Sears Tower?

Solve the proportion.

4. $\frac{6}{a} = \frac{18}{27}$

5. $\frac{5}{7} = \frac{m}{35}$

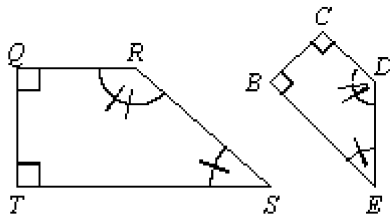
6. $ABCDE \sim GHJDF$. Complete the statements.



a. $\angle H \cong \blacksquare$

b. $\frac{GH}{\quad} = \frac{AB}{\quad}$

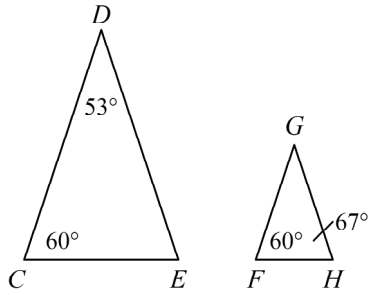
7. Figure $TQRS \sim BCDE$. Name a pair of corresponding sides?



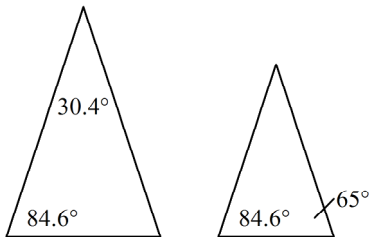
Are the polygons similar? If they are, write a similarity statement and give the similarity ratio.

8. In $\triangle QRS$, $QR = 4$, $RS = 15$, and $m\angle R = 36$. In $\triangle UVT$, $VT = 8$, $TU = 32$, and $m\angle T = 36$.
9. You want to draw an enlargement of a design that is printed on a card that is 4 in. by 5 in. You will be drawing this on a piece of paper that is $8\frac{1}{2}$ in. by 11 in. What are the dimensions of the largest complete enlargement you can make?

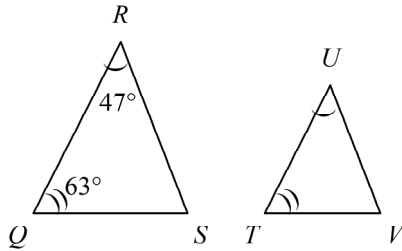
10. Write a similarity statement for the triangles.



11. Are the triangles similar? If so, explain why.

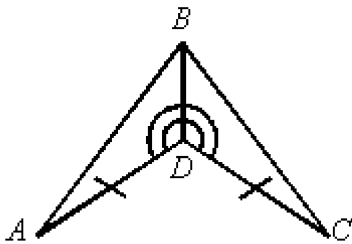


12. $\triangle QRS \sim \triangle TUV$. What is the measure of $\angle V$?



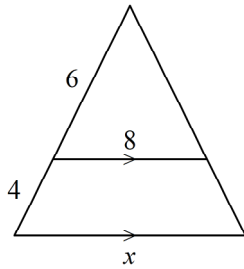
State whether the triangles are similar. If so, write a similarity statement and the postulate or theorem you used.

13.



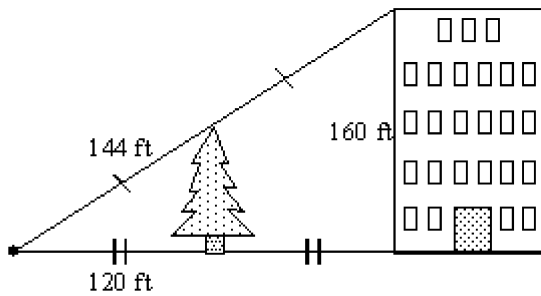
Explain why the triangles are similar. Then find the value of x .

14.

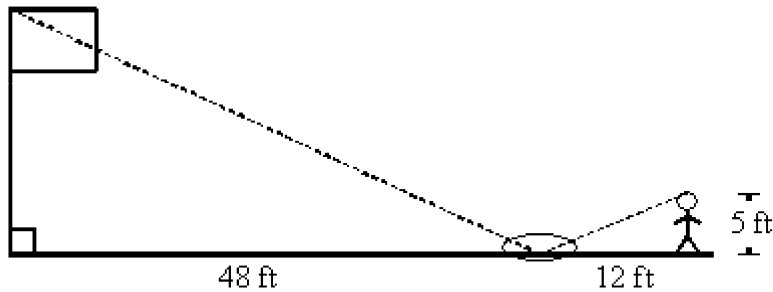


Not drawn to scale

15. Use the information in the diagram to determine the height of the tree to the nearest foot.

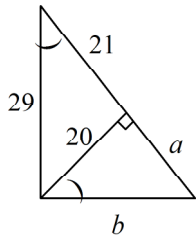


16. Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 48 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 5 feet above the ground and she was 12 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest tenth of a foot.

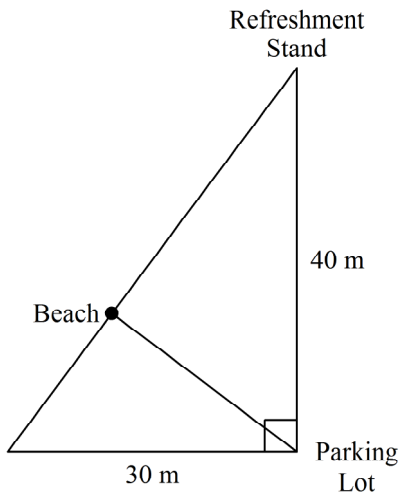


Solve for a and b .

17.

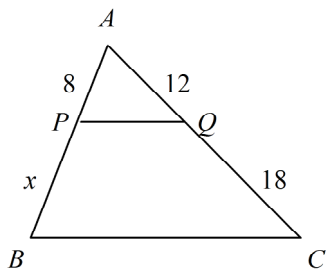


18. Jason wants to walk the shortest distance to get from the parking lot to the beach.



- a. How far is the spot on the beach from the parking lot?
- b. How far will his place on the beach be from the refreshment stand?

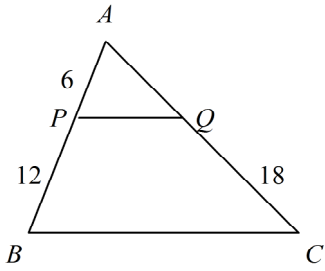
19. Use the Side-Splitter Theorem to find x , given that $\overline{PQ} \parallel \overline{BC}$.



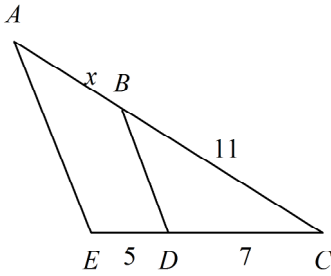
Name: _____

ID: A

20. Given: $\overline{PQ} \parallel \overline{BC}$. Find the length of \overline{AQ} . The diagram is not drawn to scale.

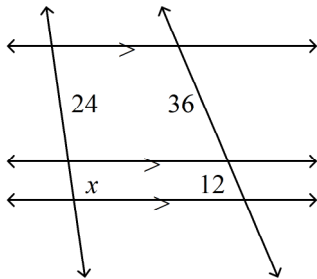


21. Given $\overline{AE} \parallel \overline{BD}$, solve for x . The diagram is not drawn to scale.

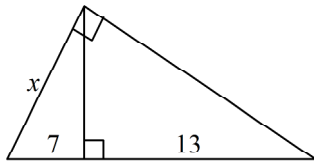


Solve for x .

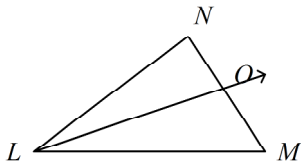
22.



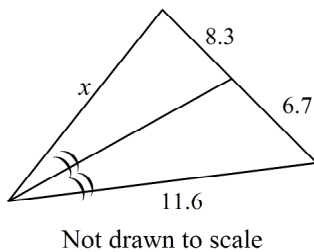
23.



24. \overrightarrow{LO} bisects $\angle NLM$, $LM = 18$, $NO = 4$, and $LN = 10$. Find OM .



25. Find x to the nearest tenth.



26. An angle bisector of a triangle divides the opposite side of the triangle into segments 8 cm and 4 cm long. A second side of the triangle is 4.4 cm long. Find all possible lengths of the third side of the triangle, x . Round answers to the nearest tenth of a centimeter.

Chapter 7 Geometry Sample Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2 REF: 7-1 Ratios and Proportions
OBJ: 7-1.1 Using Ratios and Proportions TOP: 7-1 Example 2
KEY: Cross-Product Property | proportion
2. ANS: B PTS: 1 DIF: L2 REF: 7-2 Similar Polygons
OBJ: 7-2.1 Similar Polygons TOP: 7-2 Example 1
KEY: similar polygons | corresponding sides

SHORT ANSWER

3. ANS:
1 : 725
- PTS: 1 DIF: L2 REF: 7-1 Ratios and Proportions
OBJ: 7-1.1 Using Ratios and Proportions TOP: 7-1 Example 1
KEY: ratio | word problem
4. ANS:
9
- PTS: 1 DIF: L2 REF: 7-1 Ratios and Proportions
OBJ: 7-1.1 Using Ratios and Proportions TOP: 7-1 Example 3
KEY: proportion | Cross-Product Property
5. ANS:
25
- PTS: 1 DIF: L2 REF: 7-1 Ratios and Proportions
OBJ: 7-1.1 Using Ratios and Proportions TOP: 7-1 Example 3
KEY: proportion | Cross-Product Property
6. ANS:
 $\angle B$; DC
- PTS: 1 DIF: L2 REF: 7-2 Similar Polygons
OBJ: 7-2.1 Similar Polygons TOP: 7-2 Example 1
KEY: similar polygons
7. ANS:
 \overline{QR} and \overline{CD}
- PTS: 1 DIF: L2 REF: 7-2 Similar Polygons
OBJ: 7-2.1 Similar Polygons TOP: 7-2 Example 1
KEY: similar polygons | corresponding sides

8. ANS:

The triangles are not similar.

PTS: 1 DIF: L2 REF: 7-2 Similar Polygons

OBJ: 7-2.1 Similar Polygons TOP: 7-2 Example 2

KEY: similar polygons | corresponding sides | corresponding angles

9. ANS:

 $8\frac{1}{2}$ in. by $10\frac{5}{8}$ in.

PTS: 1 DIF: L3 REF: 7-2 Similar Polygons

OBJ: 7-2.2 Applying Similar Polygons TOP: 7-2 Example 4

KEY: similar polygons | word problem

10. ANS:

 $\triangle CDE \sim \triangle FGH$

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.1 The AA Postulate and the SAS and SSS Theorems

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 1

KEY: Angle-Angle Similarity Postulate

11. ANS:

yes, by AA

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.1 The AA Postulate and the SAS and SSS Theorems

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 2

KEY: Angle-Angle Similarity Postulate | Side-Side-Side Similarity Theorem | Side-Angle-Side Similarity Theorem

12. ANS:

 70°

PTS: 1 DIF: L3 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.1 The AA Postulate and the SAS and SSS Theorems

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 1

KEY: Angle-Angle Similarity Postulate | corresponding angles

13. ANS:

 $\triangle ADB \sim \triangle CDB$; SAS

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.1 The AA Postulate and the SAS and SSS Theorems

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 2

KEY: Side-Angle-Side Similarity Theorem | corresponding sides

14. ANS:

AA Postulate; $13\frac{1}{3}$

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.2 Applying AA, SAS, and SSS Similarity

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 3

KEY: Angle-Angle Similarity Postulate

15. ANS:

80 ft

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.2 Applying AA, SAS, and SSS Similarity

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 4

KEY: Angle-Angle Similarity Postulate | word problem

16. ANS:

20 ft

PTS: 1 DIF: L2 REF: 7-3 Proving Triangles Similar

OBJ: 7-3.2 Applying AA, SAS, and SSS Similarity

STA: CA GEOM 2.0| CA GEOM 4.0| CA GEOM 5.0 TOP: 7-3 Example 4

KEY: Angle-Angle Similarity Postulate | word problem

17. ANS:

$$a = \frac{400}{21}, b = \frac{580}{21}$$

PTS: 1 DIF: L3 REF: 7-4 Similarity in Right Triangles

OBJ: 7-4.1 Using Similarity in Right Triangles STA: CA GEOM 4.0| CA GEOM 5.0

TOP: 7-4 Example 2 KEY: corollaries of the geometric mean | proportion

18. ANS:

24 m; 32 m

PTS: 1 DIF: L3 REF: 7-4 Similarity in Right Triangles

OBJ: 7-4.1 Using Similarity in Right Triangles STA: CA GEOM 4.0| CA GEOM 5.0

TOP: 7-4 Example 3

KEY: corollaries of the geometric mean | multi-part question | word problem

19. ANS:

12

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.1 Using the Side-Splitter Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 1

KEY: Side-Splitter Theorem

20. ANS:

9

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.1 Using the Side-Splitter Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 1

KEY: Side-Splitter Theorem

21. ANS:

 $7\frac{6}{7}$

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.1 Using the Side-Splitter Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 1

KEY: Side-Splitter Theorem

22. ANS:

8

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.1 Using the Side-Splitter Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 2

KEY: corollary of Side-Splitter Theorem

23. ANS:

 $2\sqrt{35}$

PTS: 1 DIF: L2 REF: 7-4 Similarity in Right Triangles

OBJ: 7-4.1 Using Similarity in Right Triangles

STA: CA GEOM 4.0| CA GEOM 5.0

TOP: 7-4 Example 2 KEY: corollaries of the geometric mean | proportion

24. ANS:

7.2

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.2 Using the Triangle-Angle-Bisector Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 3

KEY: Triangle-Angle-Bisector Theorem

25. ANS:

14.4

PTS: 1 DIF: L2 REF: 7-5 Proportions in Triangles

OBJ: 7-5.2 Using the Triangle-Angle-Bisector Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 3

KEY: Triangle-Angle-Bisector Theorem

26. ANS:
 $2.2 \text{ cm} < x < 8.8 \text{ cm}$

PTS: 1 DIF: L3 REF: 7-5 Proportions in Triangles

OBJ: 7-5.2 Using the Triangle-Angle-Bisector Theorem

STA: CA GEOM 4.0| CA GEOM 5.0| CA GEOM 7.0 TOP: 7-5 Example 3

KEY: Triangle-Angle-Bisector Theorem