

Name: _____

CHAPTER 8 – HOMEWORK AND PRACTICE

Sections 8.0 Topic: _____ Date: _____

Hw: _____

Extra Practice: _____

Sections 8.1-8.2 Topic: _____ Date: _____

Hw: _____

Extra Practice: _____

Sections 8.3 Topic: _____ Date: _____

Hw: _____

Extra Practice: _____

Sections 8.4-5 Topic: _____ Date: _____

Hw: _____

Extra Practice: _____

Review Test Date: _____

Hw: _____

Extra Practice: _____

CHAPTER 8: VOCABULARY

Dilation –

Scale factor–

Contraction –

Expansion –

Similar –

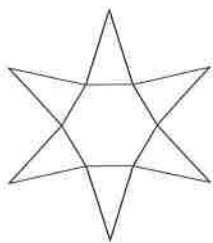
Proportional –

Similarity statement –

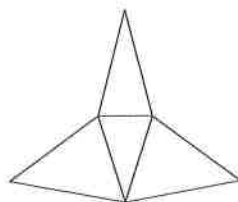
8.0 Nets

Identify each solid given its net.

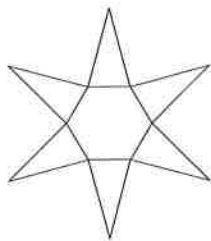
1)



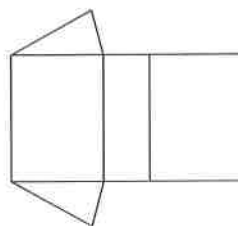
2)



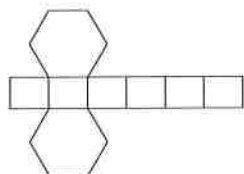
3)



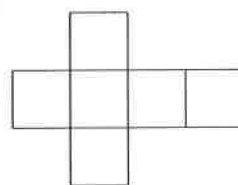
4)



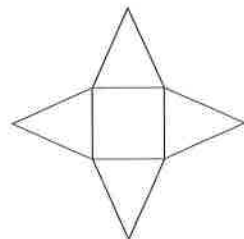
5)



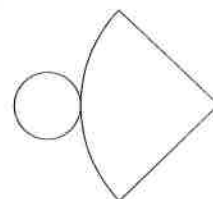
6)



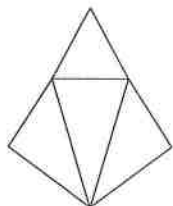
7)



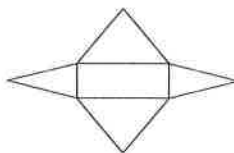
8)



9)

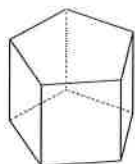


10)

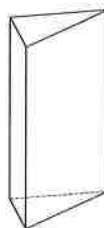


Sketch the net of each solid.

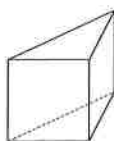
11)



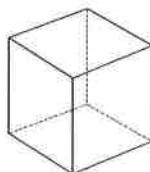
12)



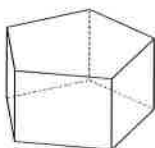
13)



14)



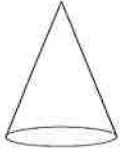
15)



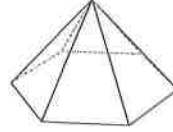
16)



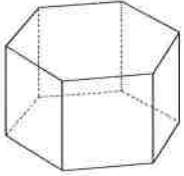
17)



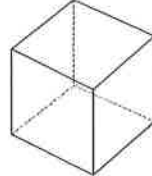
18)



19)

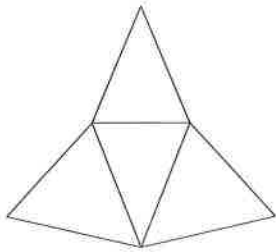


20)

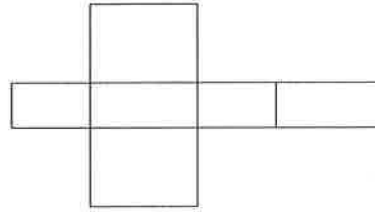


Sketch that solid that can be created from each net.

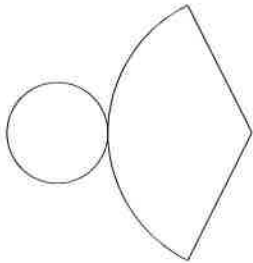
21)



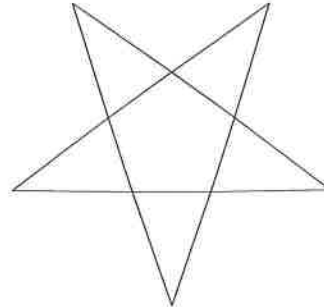
22)



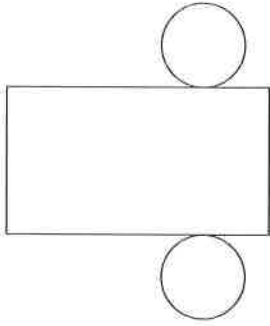
23)



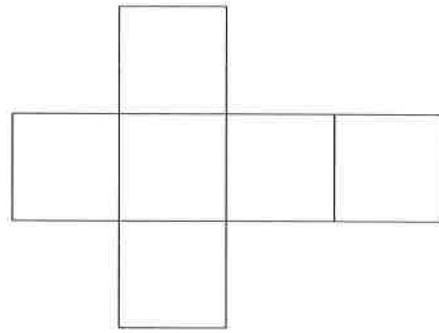
24)



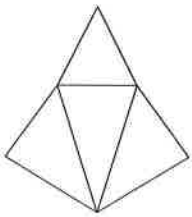
25)



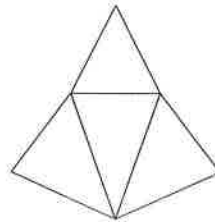
26)



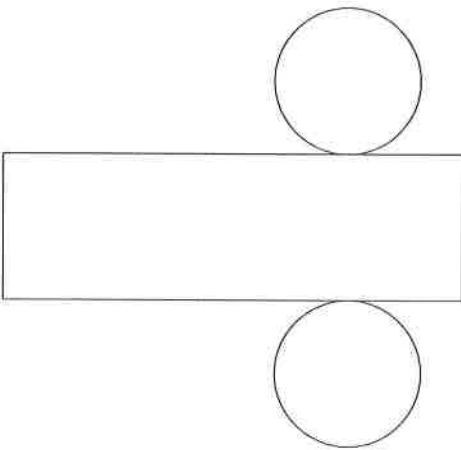
27)



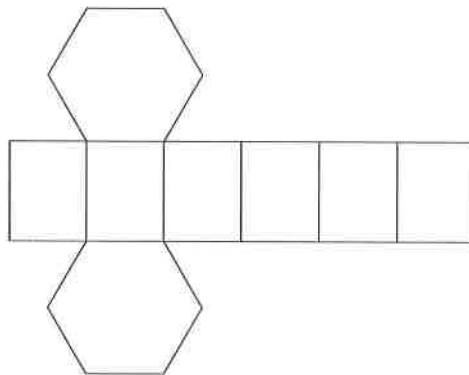
28)



29)



30)





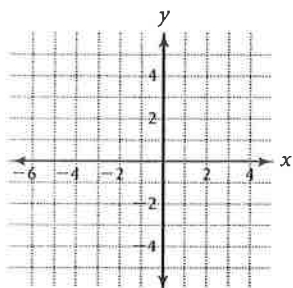
Practice Masters Level A

8.1 Dilations and Scale Factors

In Exercises 1–4, the endpoints of a line segment and a scale factor, n , are given. Use the dilation $D(x, y) = (nx, ny)$ to transform each segment, and plot the preimage and the image on the coordinate plane.

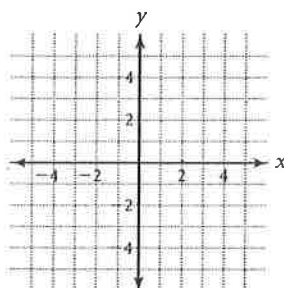
1. $(1, 2)$ and $(-3, 0)$

$n = 2$



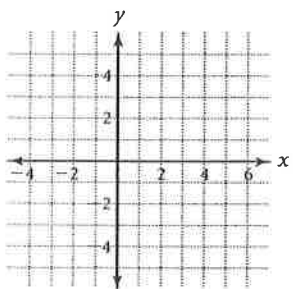
2. $(5, 2)$ and $(3, -1)$

$n = -1$



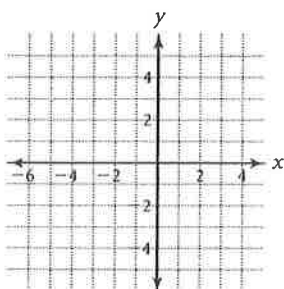
3. $(6, 3)$ and $(0, -3)$

$n = \frac{2}{3}$



4. $(-4, -2)$ and $(2, 0)$

$n = \frac{3}{2}$

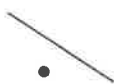


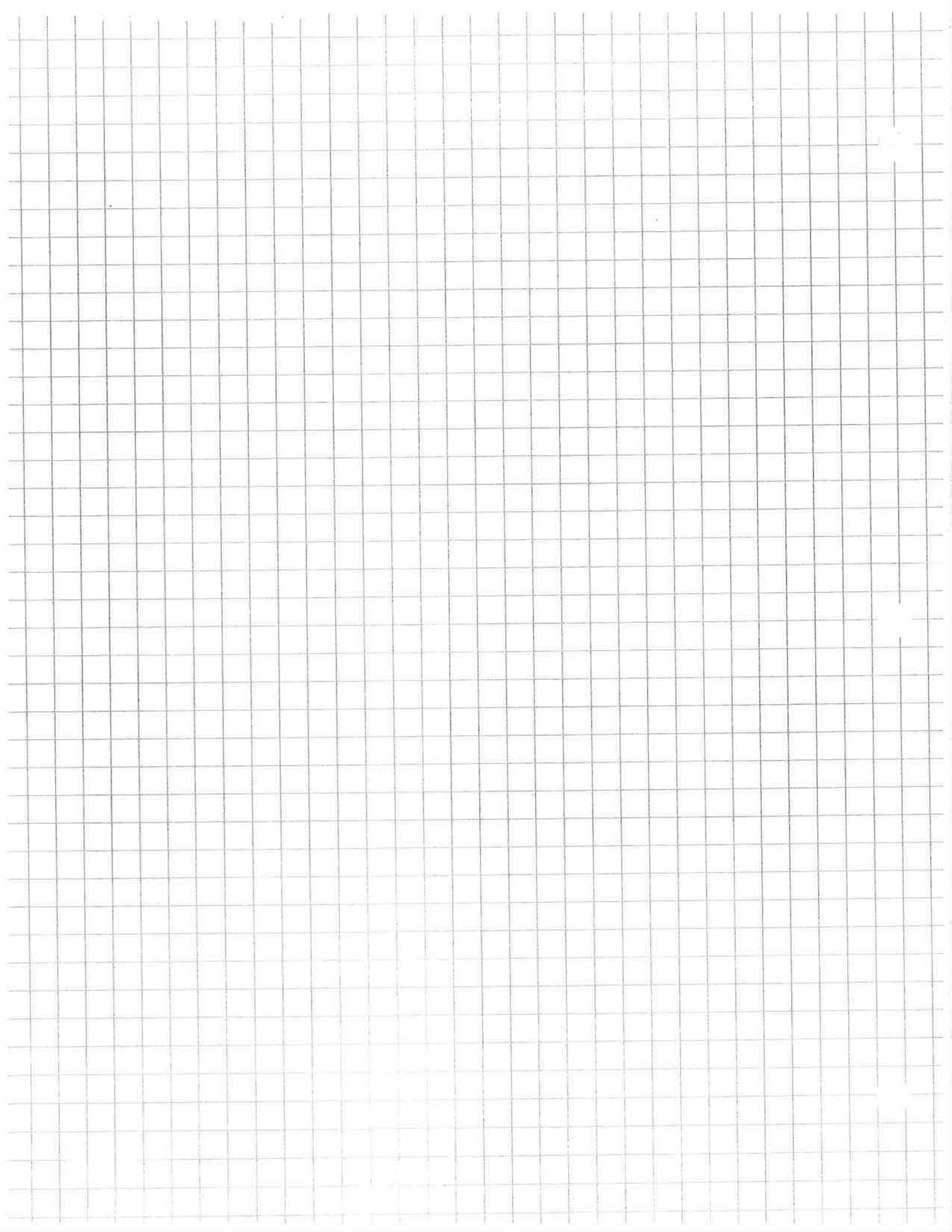
In the space provided, draw the dilation of each figure, using the given scale factor, n , and the given point as a center.

5. $n = \frac{1}{2}$



6. $n = 3$







Standardized Test Practice

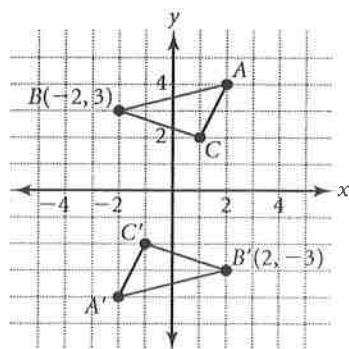
8.1 Dilations and Scale Factors

TEST TAKING STRATEGY Make an inference to fill in missing information.

1. **Multiple Choice** Which are the coordinates of the image of point $(4, -6)$ under the dilation $D(x, y) = (0.5x, 0.5y)$?

- (A) $(2, -3)$ (B) $(2, 3)$
 (C) $(8, 12)$ (D) $(8, -12)$

2. **Multiple Choice** Find the scale factor of the dilation below. ABC is the preimage and $A'B'C'$ is the image.



- (A) 2 (B) 1
 (C) -1 (D) -2

3. **Multiple Choice** A line segment 6 inches long is transformed under a dilation with scale factor of 3. How long is the image?

- (A) 2 inches (B) 3 inches
 (C) 9 inches (D) 18 inches

4. **Multiple Choice** The image under a dilation of a 12-inch segment is 3 inches long. What is the scale factor of the dilation?

- (A) $\frac{1}{4}$ (B) $\frac{1}{3}$
 (C) 3 (D) 4

Quantitative Comparison In Exercises 5–8, choose the letter of the statement below that is true about the quantities in Columns I and II.

- A The number in Column I is greater.
 B The number in Column II is greater.
 C The two numbers are equal.
 D The relationship cannot be determined from the given information.

Column I

Column II

5. scale factor of the dilation that transforms $A(-3, 5)$ to $A'(-12, 20)$

scale factor of the dilation that transforms $A(-3, 5)$ to $A'(-9, 15)$

- (A) (B) (C) (D)

6. slope of the line through points $A(a, b)$ and $B(c, d)$

slope of the line through points $A'(-2a, -2b)$ and $B'(-2c, -2d)$

- (A) (B) (C) (D)

7. length of a line segment under a dilation with scale factor 0.5

length of a line segment under a dilation with scale factor 2

- (A) (B) (C) (D)

8. scale factor of the dilation that transforms $A(-2, 3)$ to $A'(4, -6)$

scale factor of the dilation that transforms $A(-2, 3)$ to $A'(-4, 6)$

- (A) (B) (C) (D)

9. **Multiple Choice** Which of the following are the coordinates of the image of point $(-1, 8)$ under the dilation $D(x, y) = (2x, -0.5y)$?

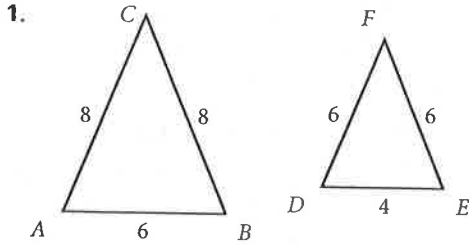
- (A) $(-2, 4)$ (B) $(-2, -4)$
 (C) $(2, 40)$ (D) $(-2, 40)$

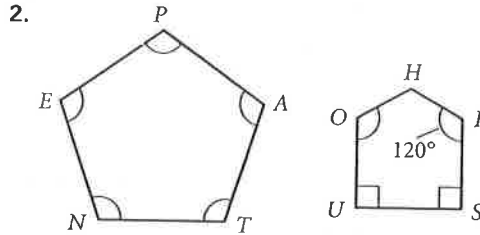


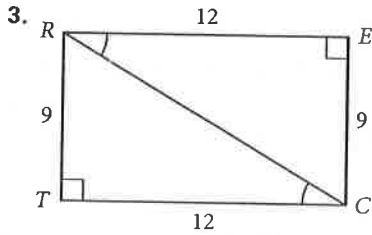
Practice Masters Level A

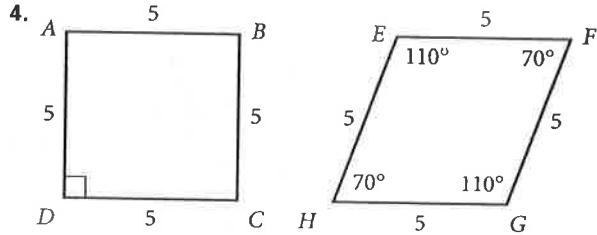
8.2 Similar Polygons

In Exercises 1–4, determine whether the polygons are similar. Explain your reasoning. If the polygons are similar, write a similarity statement.

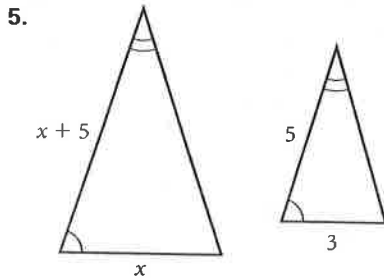


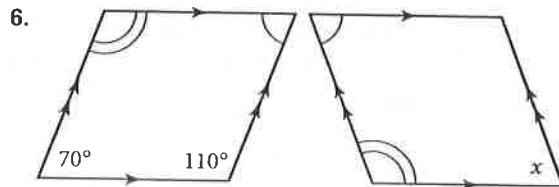






In Exercises 5 and 6, the polygons in each pair are similar. Find x .





Solve each proportion for y .

7. $\frac{3y}{4.1} = \frac{6}{5}$

8. $\frac{36}{y+2} = \frac{24}{y}$

Proportions & Similar Triangles

Solve each proportion.

1) $\frac{k}{4} = \frac{9}{8}$

2) $\frac{6}{p} = \frac{7}{5}$

3) $\frac{10}{5} = \frac{x}{2}$

4) $\frac{5}{10} = \frac{n}{6}$

5) $\frac{3}{6} = \frac{n+4}{8}$

6) $\frac{5}{9} = \frac{8}{b-3}$

7) $\frac{9}{4} = \frac{v-4}{2}$

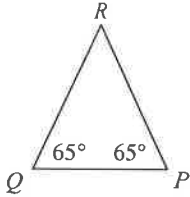
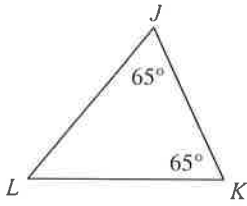
8) $\frac{2}{n} = \frac{5}{n-10}$

9) $\frac{8}{7} = \frac{x-3}{x}$

10) $\frac{a}{8} = \frac{a-4}{10}$

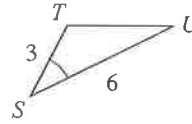
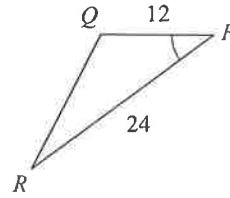
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

11)



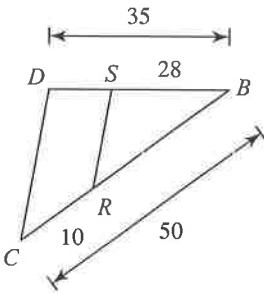
$\triangle JKL \sim$ _____

12)



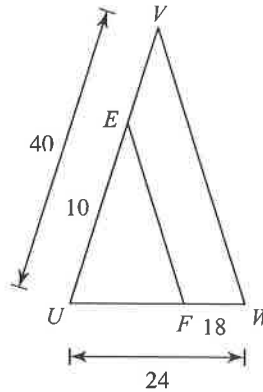
$\triangle PQR \sim$ _____

13)



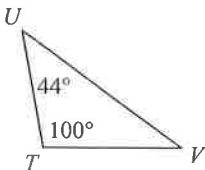
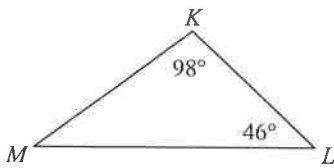
$\triangle BCD \sim$ _____

14)



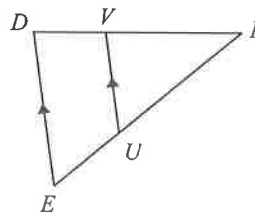
$\triangle UVW \sim$ _____

15)



$\triangle KLM \sim$ _____

16)



$\triangle FED \sim$ _____

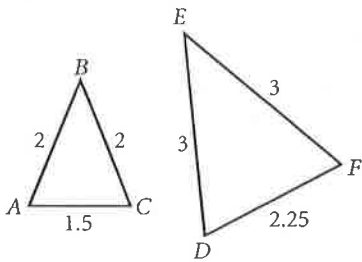


Practice

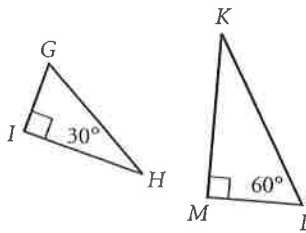
8.3 Triangle Similarity

Determine whether each pair of triangles can be proven similar by using AA, SSS, or SAS. If so, write a similarity statement, and identify the postulate or theorem used.

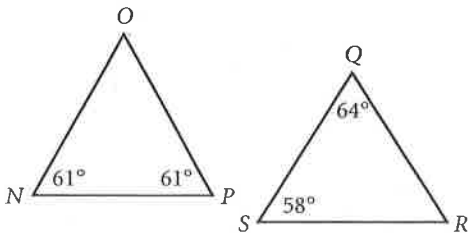
1.



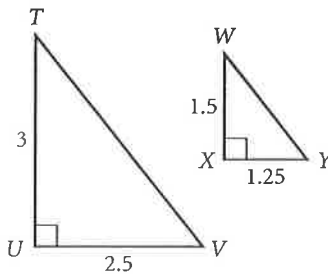
2.



3.

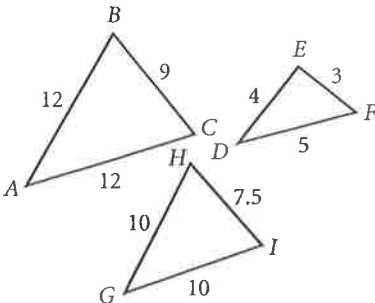


4.

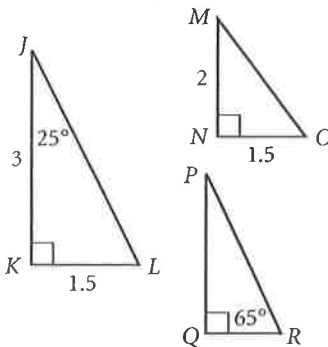


In Exercises 5 and 6, indicate which figures are similar. Explain your reasoning.

5.



6.



Copyright © by Holt, Rinehart and Winston. All rights reserved.

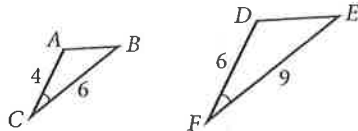


Standardized Test Practice

8.3 Triangle Similarity Postulates

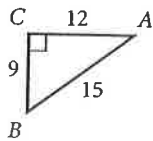
TEST TAKING STRATEGY Look carefully at all possible answers before choosing one.

1. **Multiple Choice** Which statement is true about the triangles?



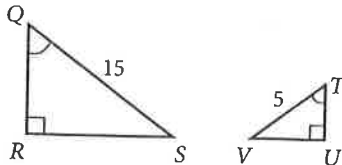
- (A) $\triangle ABC \sim \triangle DEF$ by AA.
- (B) $\triangle ABC \sim \triangle DEF$ by SSS.
- (C) $\triangle ABC \sim \triangle DEF$ by SAS.
- (D) The triangles can not be proven similar.

2. **Multiple Choice** Which triangle is similar to $\triangle ABC$?



- (A)
- (B)
- (C)
- (D)

3. **Multiple Choice** Which of the following statements is true about the triangles below?



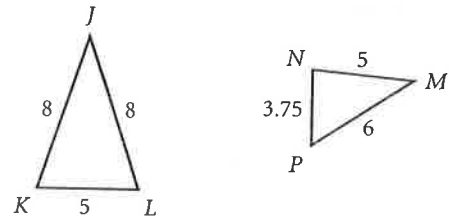
- (A) $\triangle QRS \sim \triangle TUV$ by AA.
- (B) $\triangle QRS \sim \triangle TUV$ by SSS.
- (C) $\triangle QRS \sim \triangle TUV$ by SAS.
- (D) The triangles can not be proven similar.

Quantitative Comparison In Exercises 4–5, choose the letter of the statement below that is true about the quantities in Columns I and II.

- A The number in Column I is greater.
- B The number in Column II is greater.
- C The two numbers are equal.
- D The relationship cannot be determined from the given information.

Column I	Column II
4. $m\angle L$ if $\triangle JKL \sim \triangle QRS$, $m\angle J = 90^\circ$, and $m\angle K = 54^\circ$	$m\angle R$ if $\triangle JKL \sim \triangle QRS$, $m\angle J = 90^\circ$, and $m\angle K = 54^\circ$
(A) (B)	(C) (D)
5. $\frac{AB}{DE}$ if $\triangle ABC \sim \triangle DEF$	$\frac{CB}{FE}$ if $\triangle ABC \sim \triangle DEF$
(A) (B)	(C) (D)

6. **Multiple Choice** Which of the following statements is true about the triangles below?



- (A) $\triangle JKL \sim \triangle MNP$ by AA.
- (B) $\triangle JKL \sim \triangle MNP$ by SSS.
- (C) $\triangle JKL \sim \triangle MNP$ by SAS.
- (D) The triangles can not be proven similar.



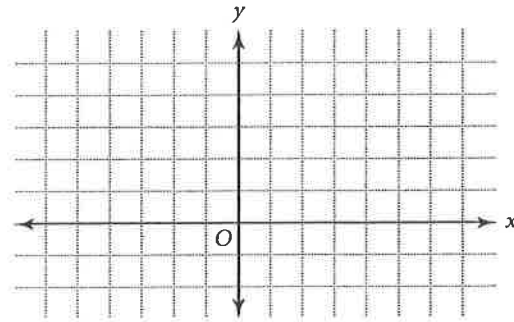
Mid-Chapter Assessment

Chapter 8 (Lessons 8.1–8.3)

Write the letter that best answers the question or completes the statement.

- _____ 1. The point $(-3, 2)$ is transformed by a dilation with a scale factor of 3. What are the coordinates of the image?
 a. $(3, -2)$ b. $(2, -3)$ c. $(9, -6)$ d. $(-9, 6)$
- _____ 2. The point $(8, -12)$ is transformed to the point $(-2, 3)$. What is the scale factor of the dilation?
 a. $-\frac{1}{4}$ b. $\frac{1}{2}$ c. -2 d. 4
- _____ 3. If $\frac{p}{q} = \frac{r}{s}$, which of the following is true? (Assume that $p, q, r,$ and $s \neq 0$.)
 a. $\frac{r}{q} = \frac{p}{s}$ b. $\frac{p}{r} = \frac{q}{s}$ c. $\frac{p}{s} = \frac{r}{q}$ d. $\frac{s}{q} = \frac{p}{r}$
- _____ 4. If $\triangle ABC \sim \triangle XYZ$, which of the following is true?
 a. $\frac{AB}{XY} = \frac{BC}{YZ}$ b. $\frac{AC}{XY} = \frac{BC}{YZ}$ c. $\frac{BC}{XY} = \frac{AB}{YZ}$ d. $\frac{AC}{XZ} = \frac{BC}{XY}$

5. Plot the image of $P(2, 1)$ after a dilation with a scale factor of 3.

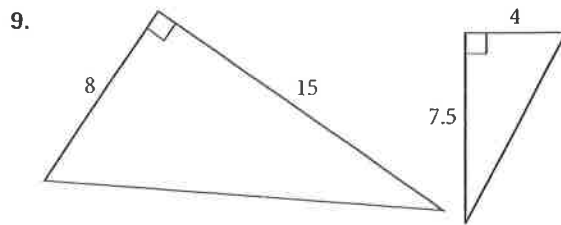
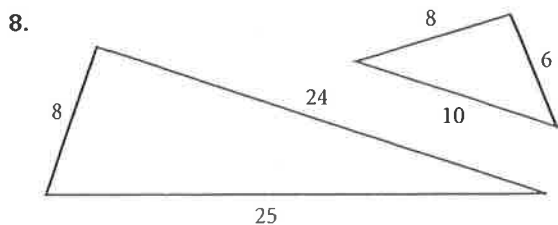


Solve each proportion for x .

6. $\frac{6}{15} = \frac{8}{x}$ _____

7. $\frac{4}{x+2} = \frac{7}{21}$ _____

Determine whether each pair of triangles can be proven similar. If so, write the postulate used.



5-1 Practice Form K

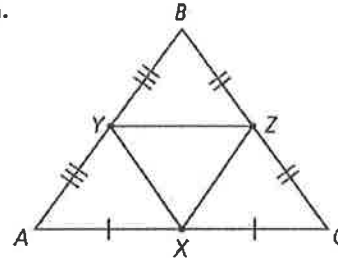
Midsegments of Triangles

Identify three pairs of parallel segments in the diagram.

1. $\overline{AB} \parallel ?$

2. $\overline{BC} \parallel ?$

3. $\overline{AC} \parallel ?$



Name the segment that is parallel to the given segment.

4. \overline{MN}

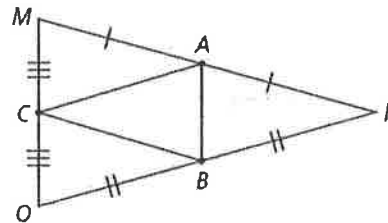
5. \overline{ON}

6. \overline{AB}

7. \overline{CB}

8. \overline{OM}

9. \overline{AC}



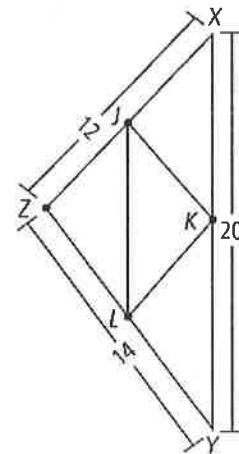
Points J , K , and L are the midpoints of the sides of $\triangle XYZ$.

10. Find LK .

To start, identify what kind of segment \overline{LK} is. Then identify which relationship in the Triangle Midsegment Theorem will help you find the length.

\overline{LK} is a midsegment of .

\overline{LK} is parallel to .



11. Find YK .

12. Find JK .

13. Find XK .

14. Find JL .

15. Find YL .

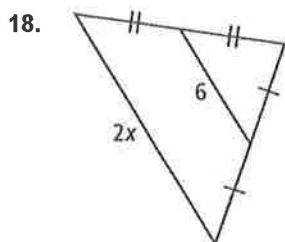
16. Find KL .

17. Draw a triangle and label it ABC . Draw all the midpoints and label them. Identify pairs of parallel segments and angles in your triangle.

5-1 Practice (continued) Form K

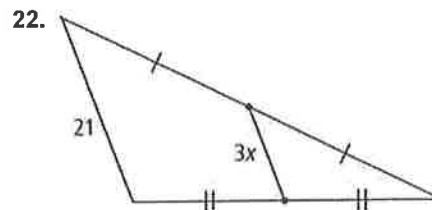
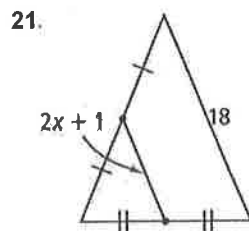
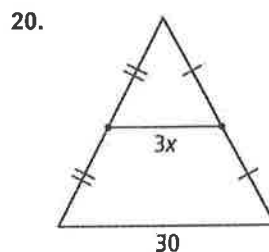
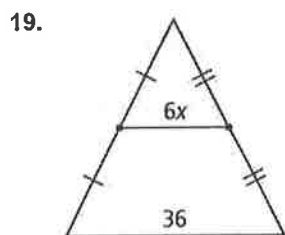
Midsegments of Triangles

Algebra Find the value of x .



To start, identify the midsegment. Then write an equation to show that its length is half the length of its parallel segment.

The segment with length is the midsegment.
 = $\frac{1}{2}$ ·

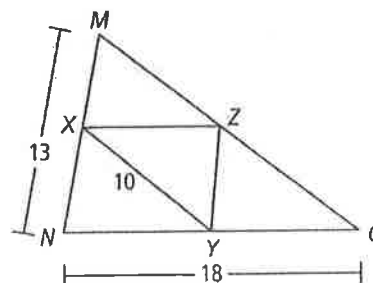


X is the midpoint of \overline{MN} . Y is the midpoint of \overline{ON} .

23. Find XZ .

24. If $XY = 10$, find MO .

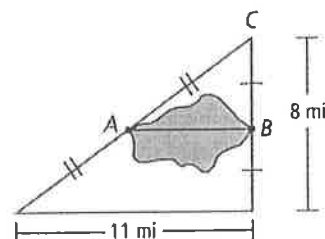
25. If $m\angle M$ is 64, find $m\angle Y$.



Use the diagram at the right for Exercises 26 and 27.

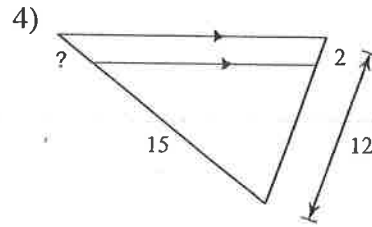
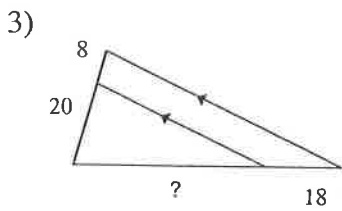
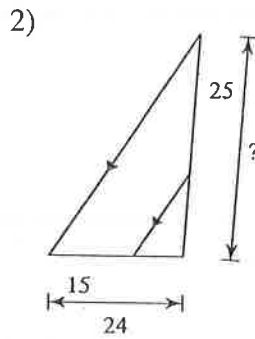
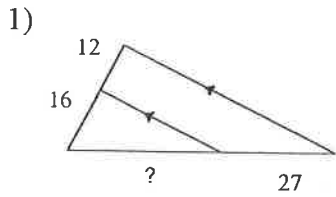
26. What is the distance across the lake?

27. Is it a shorter distance from A to B or from B to C ? Explain.

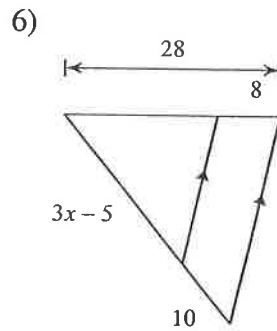
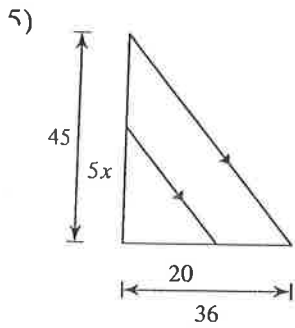


Proportional Parts in Triangles and Parallel Lines

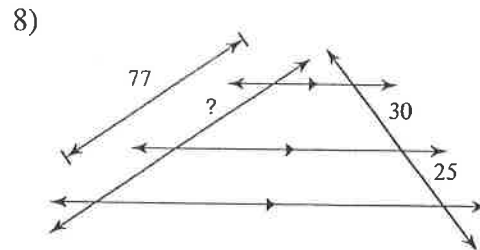
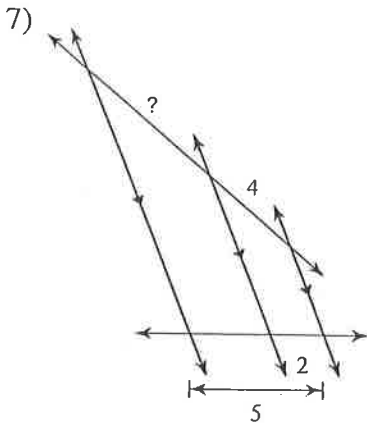
Find the missing length indicated.



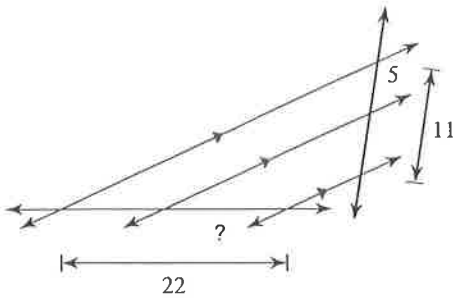
Solve for x .



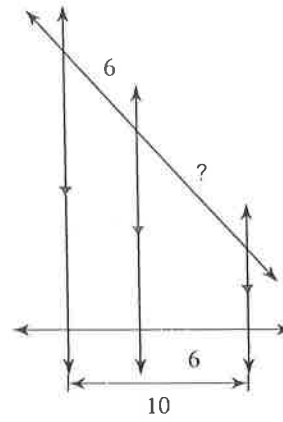
Find the missing length indicated.



9)

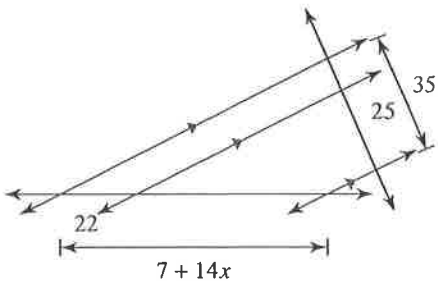


10)

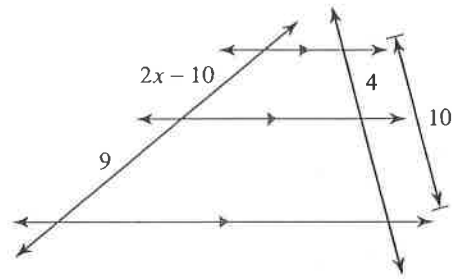


Solve for x .

11)

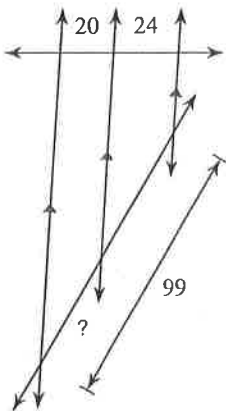


12)

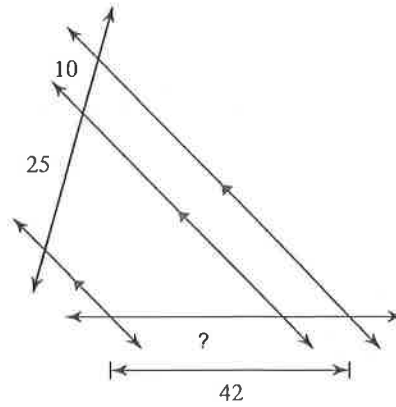


Find the missing length indicated.

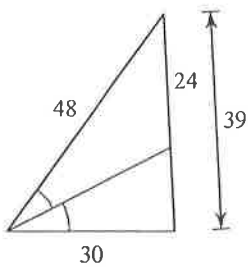
3)



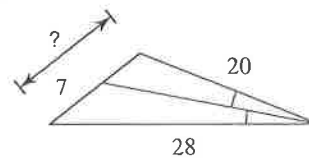
14)



15)

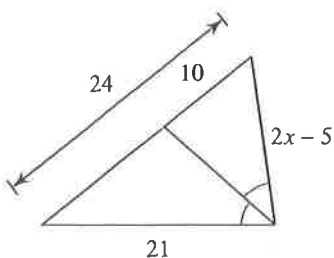


16)

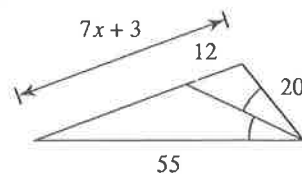


Solve for x .

17)



18)

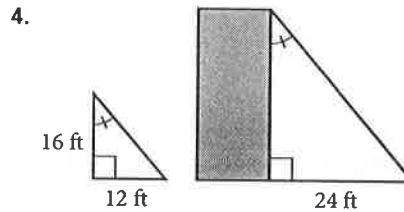
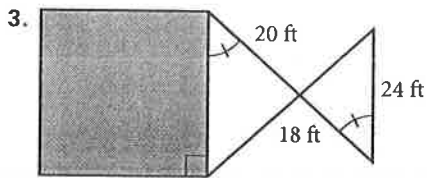
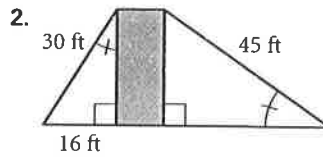
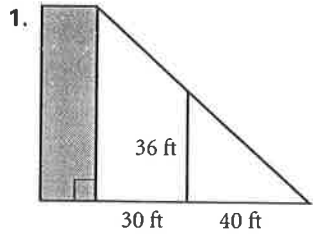




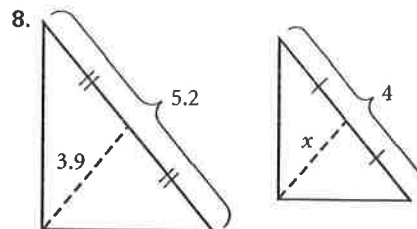
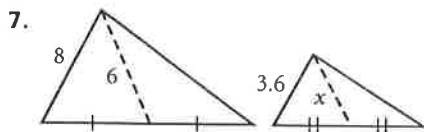
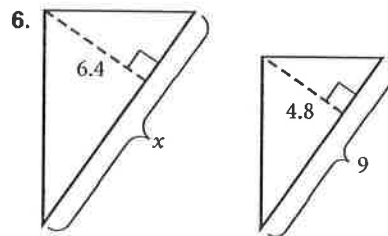
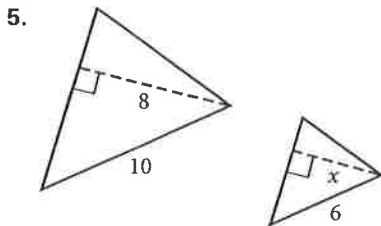
Practice

8.5 Indirect Measurement and Additional Similarity Theorems

In Exercises 1–4, use the diagrams to find the height of each building.



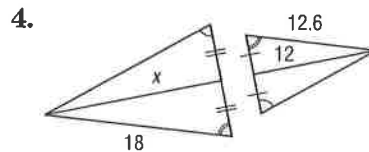
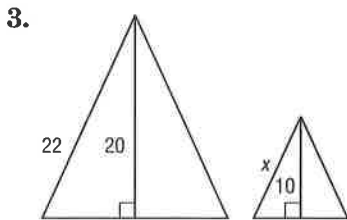
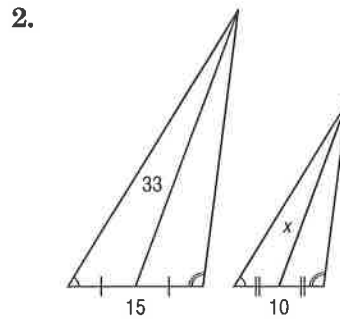
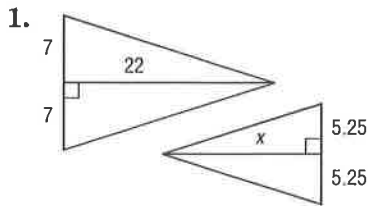
In Exercises 5–8, the triangles are similar. Find x .



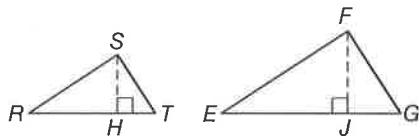
8-5 Skills Practice

Parts of Similar Triangles

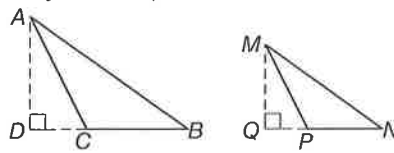
Find x .



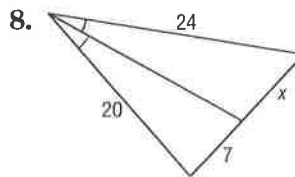
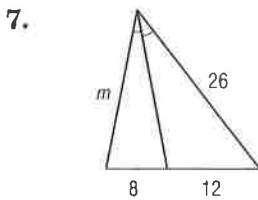
5. If $\triangle RST \sim \triangle EFG$, \overline{SH} is an altitude of $\triangle RST$, \overline{FJ} is an altitude of $\triangle EFG$, $ST = 6$, $SH = 5$, and $FJ = 7$, find FG .



6. If $\triangle ABC \sim \triangle MNP$, \overline{AD} is an altitude of $\triangle ABC$, \overline{MQ} is an altitude of $\triangle MNP$, $AB = 24$, $AD = 14$, and $MQ = 10.5$, find MN .



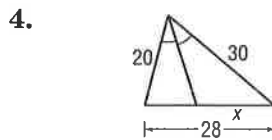
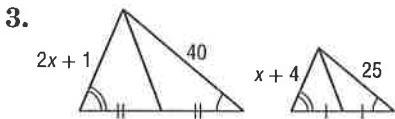
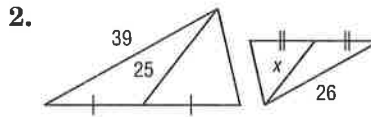
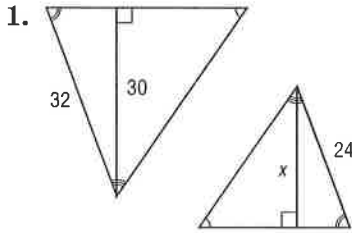
Find the value of each variable.



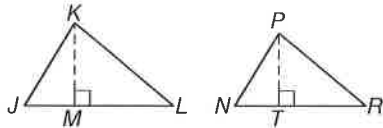
7-5 Practice

Parts of Similar Triangles

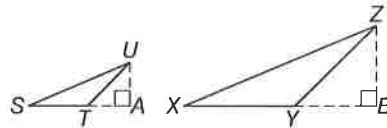
ALGEBRA Find x .



5. If $\triangle JKL \sim \triangle NPR$, \overline{KM} is an altitude of $\triangle JKL$, \overline{PT} is an altitude of $\triangle NPR$, $KL = 28$, $KM = 18$, and $PT = 15.75$, find PR .



6. If $\triangle STU \sim \triangle XYZ$, \overline{UA} is an altitude of $\triangle STU$, \overline{ZB} is an altitude of $\triangle XYZ$, $UT = 8.5$, $UA = 6$, and $ZB = 11.4$, find ZY .



7. **PHOTOGRAPHY** Francine has a camera in which the distance from the lens to the film is 24 millimeters.

- If Francine takes a full-length photograph of her friend from a distance of 3 meters and the height of her friend is 140 centimeters, what will be the height of the image on the film? (*Hint: Convert to the same unit of measure.*)
- Suppose the height of the image on the film of her friend is 15 millimeters. If Francine took a full-length shot, what was the distance between the camera and her friend?