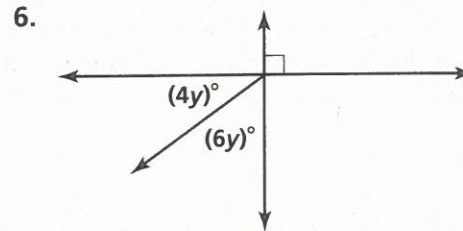
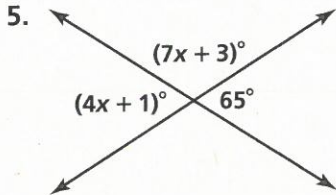
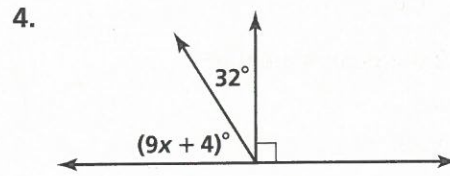
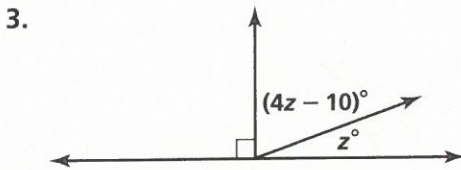
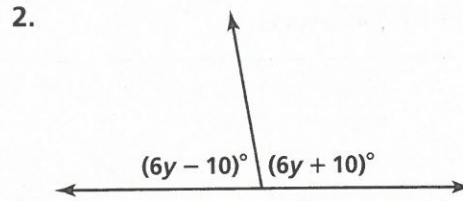
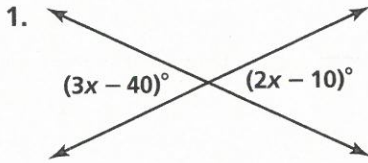


Practice 2-5

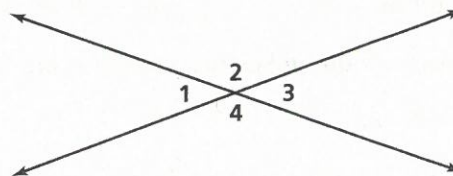
Proving Angles Congruent

Find the values of the variables.

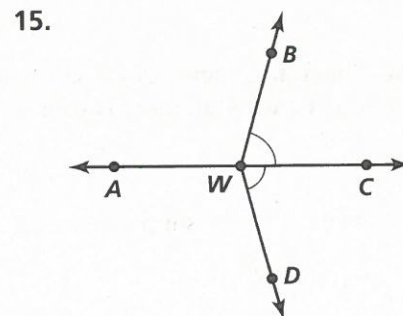
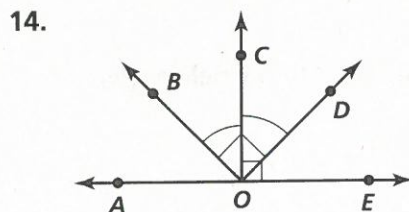
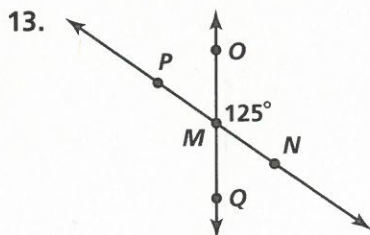


Write *true* or *false*.

7. $\angle 1$ and $\angle 2$ are vertical angles.
8. $\angle 2$ and $\angle 3$ are supplementary angles.
9. $m\angle 1 = m\angle 3$
10. $m\angle 3 + m\angle 4 = 180$
11. $m\angle 1 + m\angle 3 = 180$
12. $\angle 4$ and $\angle 2$ are adjacent angles.



Write three conclusions that can be drawn from each figure.



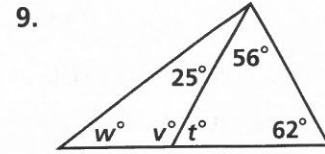
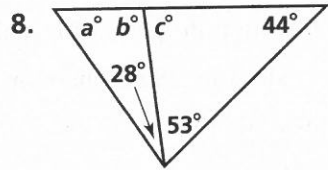
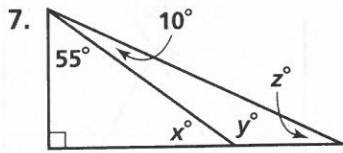
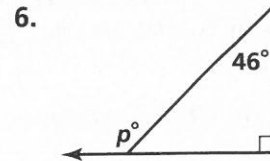
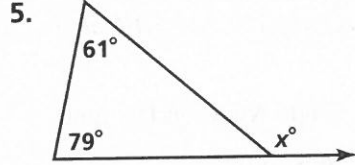
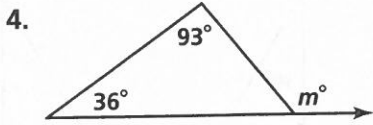
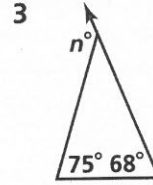
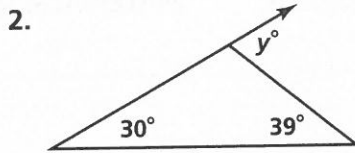
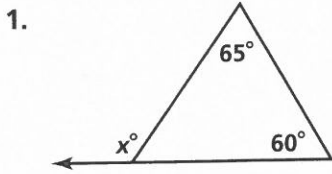
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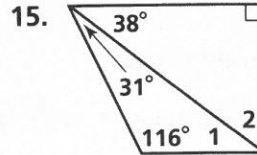
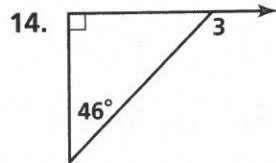
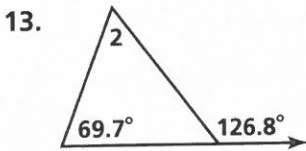
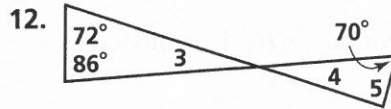
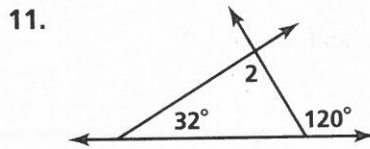
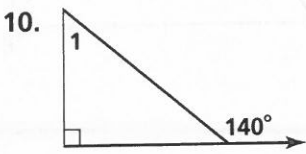
Practice 3-3

Parallel Lines and the Triangle Angle-Sum Theorem

Find the value of each variable.



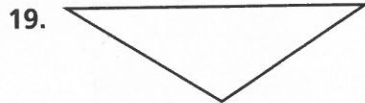
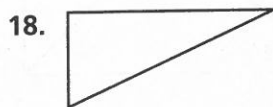
Find the measure of each numbered angle.



16. The sides of a triangle are 10 cm, 8 cm, and 10 cm. Classify the triangle.

17. The angles of a triangle are 44° , 110° , and 26° . Classify the triangle.

Use a protractor and a centimeter ruler to measure the angles and the sides of each triangle. Classify each triangle by its angles and sides.



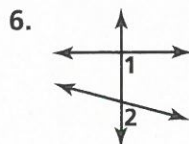
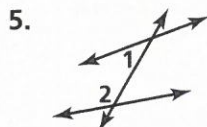
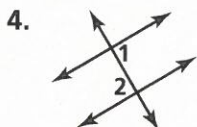
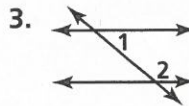
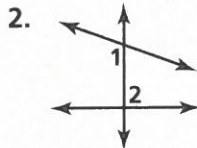
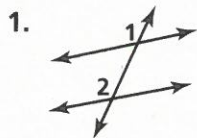
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Practice 3-1

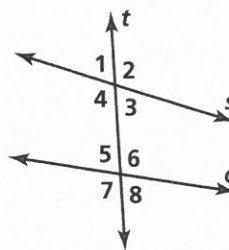
Properties of Parallel Lines

Classify each pair of angles as *alternate interior angles*, *same-side interior angles*, or *corresponding angles*.

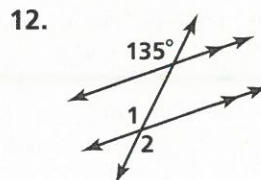
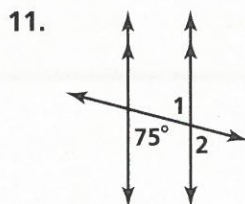
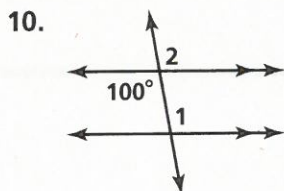


Use the figure on the right to answer Exercises 7–9.

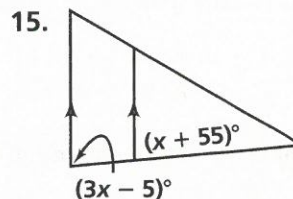
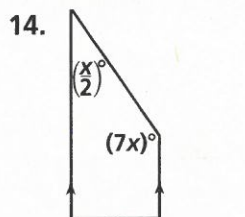
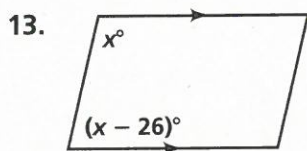
- Name all pairs of corresponding angles formed by the transversal t and lines s and c .
- Name all pairs of alternate interior angles formed by the transversal t and lines s and c .
- Name all pairs of same-side interior angles formed by the transversal t and lines s and c .



Find $m\angle 1$ and then $m\angle 2$. Justify each answer.



Algebra Find the value of x . Then find the measure of each angle.



16. **Developing Proof** Supply the missing reasons in this two-column proof.

Given: $a \parallel b$

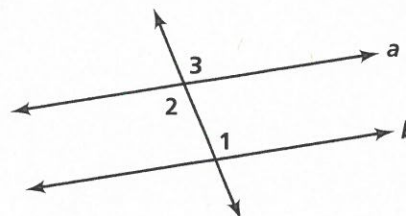
Prove: $\angle 1 \cong \angle 3$

Statements

- $a \parallel b$
- $\angle 1 \cong \angle 2$
- $\angle 2 \cong \angle 3$
- $\angle 1 \cong \angle 3$

Reasons

- Given
- a. ?
- b. ?
- c. ?



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Practice 2-4

Reasoning in Algebra

Use the given property to complete each statement.

- Symmetric Property of Equality
If $MN = UT$, then $\underline{\quad?}$.
- Division Property of Equality
If $4m\angle QWR = 120$, then $\underline{\quad?}$.
- Transitive Property of Equality
If $SB = VT$ and $VT = MN$, then $\underline{\quad?}$.
- Addition Property of Equality
If $y - 15 = 36$, then $\underline{\quad?}$.
- Reflexive Property of Congruence
 $\overline{JL} \cong \underline{\quad?}$

Give a reason for each step.

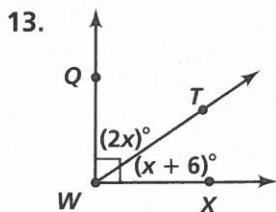
6. $7x - 4 = 10$
 $7x = 14$
 $x = 2$

7. $0.25x + 2x + 12 = 39$
 $2.25x + 12 = 39$
 $2.25x = 27$
 $225x = 2700$
 $x = 12$

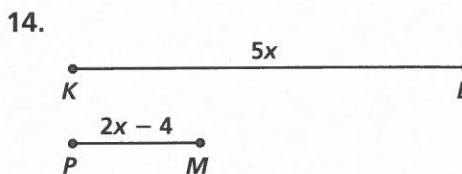
Name the property that justifies each statement.

- If $m\angle G = 35$ and $m\angle S = 35$, then $m\angle G \cong m\angle S$.
- If $10x + 6y = 14$ and $x = 2y$, then $10(2y) + 6y = 14$.
- If $TR = MN$ and $MN = VW$, then $TR = VW$.
- If $\overline{JK} \cong \overline{LM}$, then $\overline{LM} \cong \overline{JK}$.
- If $\angle Q \cong \angle S$ and $\angle S \cong \angle P$, then $\angle Q \cong \angle P$.

Fill in the missing information. Solve for x , and justify each step.



$$\begin{aligned}
 m\angle QWT + m\angle TWX &= 90 \\
 2x + (x + 6) &= \underline{\quad?} \\
 \underline{\quad?} + 6 &= 90 \\
 \underline{\quad?} &= \underline{\quad?} \\
 x &= \underline{\quad?}
 \end{aligned}$$



$$\begin{aligned}
 KL &= 3(PM) \\
 5x &= 3 \underline{\quad?} \\
 5x &= \underline{\quad?} \\
 \underline{\quad?} &= -12 \\
 x &= \underline{\quad?}
 \end{aligned}$$

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Practice 3-2

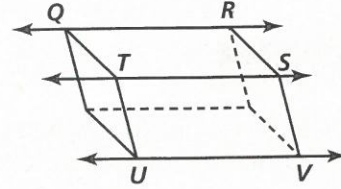
Proving Lines Parallel

1. **Developing Proof** Complete the paragraph proof for the figure shown.

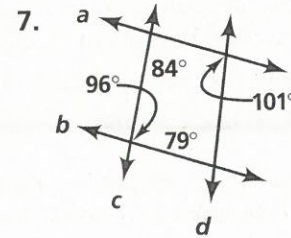
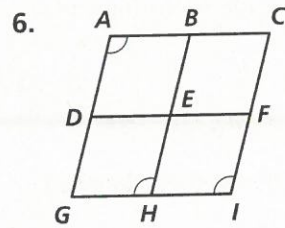
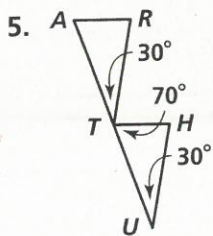
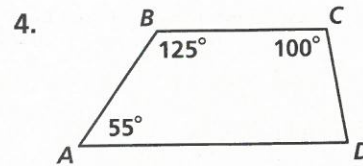
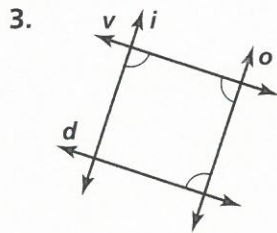
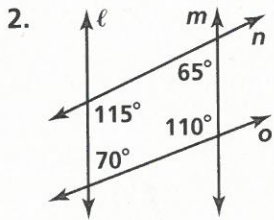
Given: $\angle RQT$ and $\angle QTS$ are supplementary.
 $\angle TSV$ and $\angle SVU$ are supplementary.

Prove: $\overrightarrow{QR} \parallel \overrightarrow{UV}$

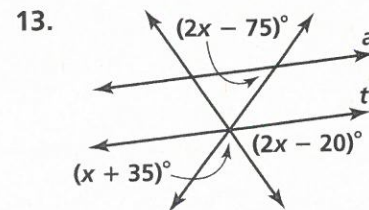
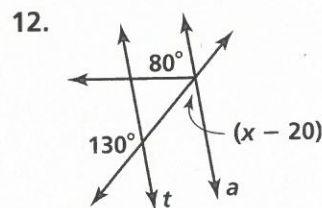
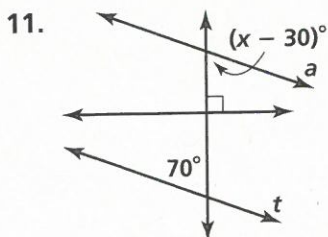
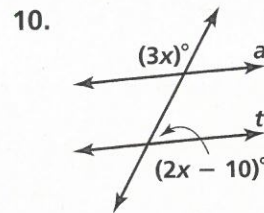
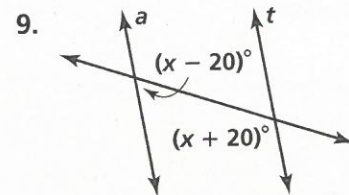
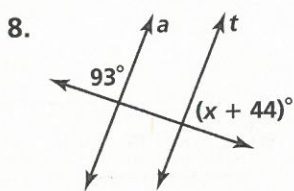
Proof Because $\angle RQT$ and $\angle QTS$ are supplementary, $\angle RQT$ and $\angle QTS$ are **a.** ? angles. By the Same-Side Interior Angles Theorem, **b.** ? \parallel **c.** ?. Because $\angle TSV$ and $\angle SVU$ are supplementary, $\angle TSV$ and $\angle SVU$ are **d.** ? angles. By the **e.** ? Theorem, $\overrightarrow{TS} \parallel \overrightarrow{UV}$. Because \overrightarrow{QR} and \overrightarrow{UV} both are parallel to **f.** ?, $\overrightarrow{QR} \parallel \overrightarrow{UV}$ by Theorem **g.** ?.



Which lines or segments are parallel? Justify your answer with a theorem or postulate.



Algebra Find the value of x for which $a \parallel t$.



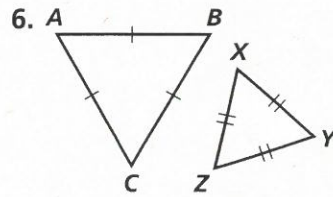
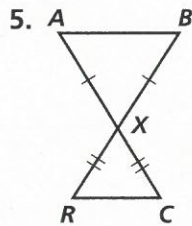
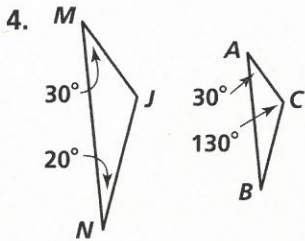
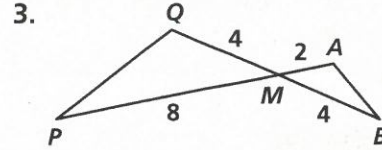
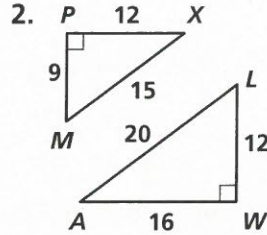
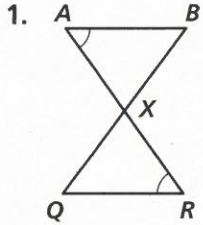
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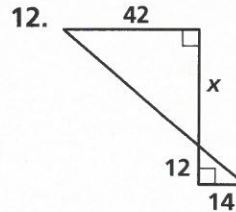
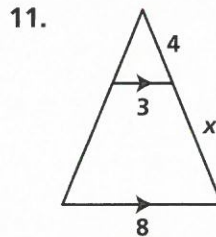
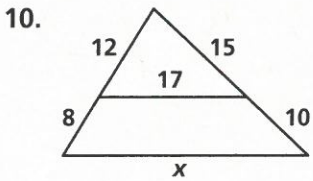
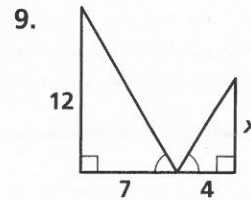
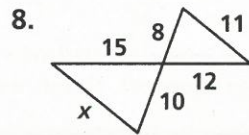
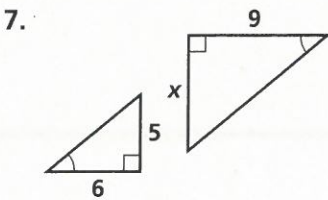
Practice 8-3

Proving Triangles Similar

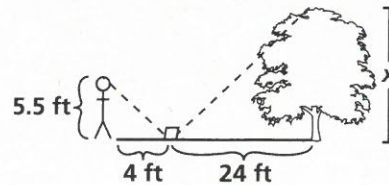
Explain why the triangles are similar. Write a similarity statement for each pair.



Algebra Find the value of x .



13. Natasha places a mirror on the ground 24 ft from the base of an oak tree. She walks backward until she can see the top of the tree in the middle of the mirror. At that point, Natasha's eyes are 5.5 ft above the ground, and her feet are 4 ft from the image in the mirror. Find the height of the oak tree.



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Practice 8-4

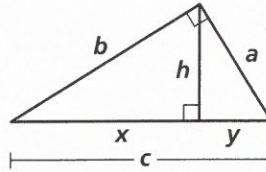
Similarity in Right Triangles

Algebra Find the geometric mean of each pair of numbers.

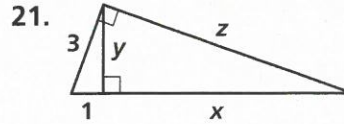
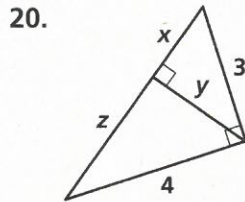
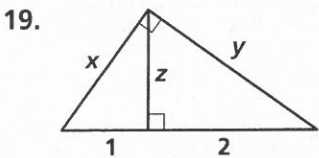
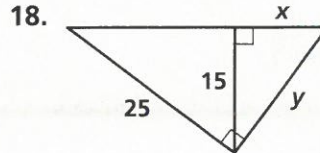
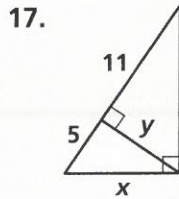
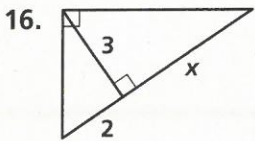
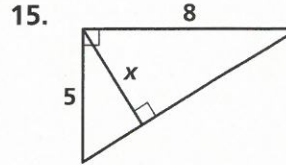
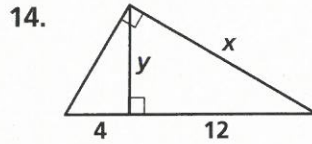
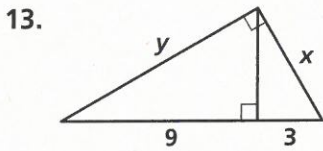
- | | | |
|-------------|--------------|-------------|
| 1. 32 and 8 | 2. 4 and 16 | 3. 11 and 7 |
| 4. 2 and 22 | 5. 10 and 20 | 6. 6 and 30 |

Algebra Refer to the figure to complete each proportion.

- | | | |
|---------------------------------|---------------------------------|---------------------------------|
| 7. $\frac{x}{h} = \frac{?}{y}$ | 8. $\frac{a}{b} = \frac{?}{h}$ | 9. $\frac{a}{b} = \frac{h}{?}$ |
| 10. $\frac{a}{c} = \frac{y}{?}$ | 11. $\frac{a}{c} = \frac{h}{?}$ | 12. $\frac{b}{x} = \frac{?}{b}$ |



Algebra Find the values of the variables.



22. The altitude to the hypotenuse of a right triangle divides the hypotenuse into segments 6 in. and 10 in. long. Find the length h of the altitude.

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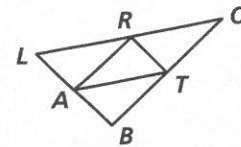
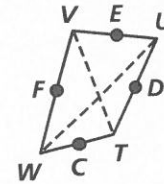
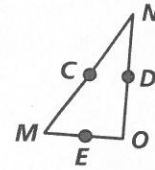
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Practice 5-1

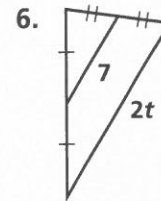
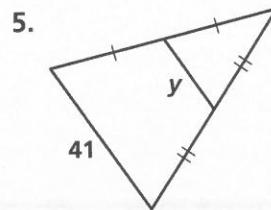
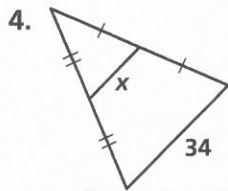
Midsegments of Triangles

Use the diagrams at the right to complete the exercises.

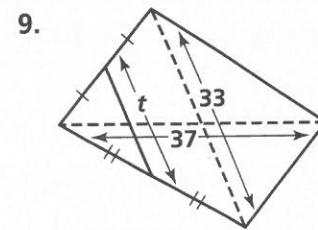
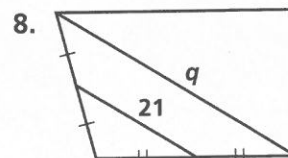
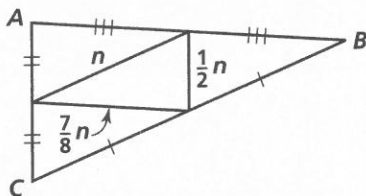
- In $\triangle MNO$, the points $C, D,$ and E are midpoints. $CD = 4$ cm, $CE = 8$ cm, and $DE = 7$ cm.
 - Find MO .
 - Find NO .
 - Find MN .
- In quadrilateral $WVUT$, the points $F, E, D,$ and C are midpoints. $WU = 45$ in. and $TV = 31$ in.
 - Find CD .
 - Find CF .
 - Find ED .
- In $\triangle LOB$, the points $A, R,$ and T are midpoints. $LB = 19$ cm, $LO = 35$ cm, and $OB = 29$ cm.
 - Find RT .
 - Find AT .
 - Find AR .



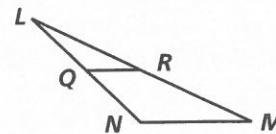
Find the value of the variable.



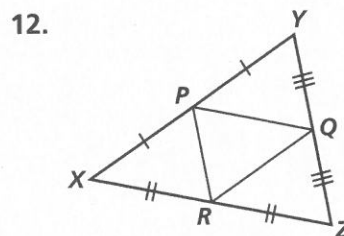
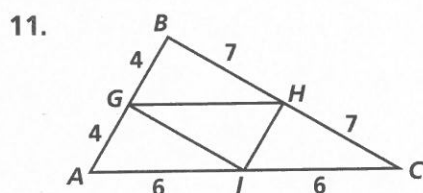
7. Perimeter of $\triangle ABC = 32$ cm



10. \overline{QR} is a midsegment of $\triangle LMN$.
- $QR = 9$. Find NM .
 - $LN = 12$ and $LM = 31$. Find the perimeter of $\triangle LMN$.



Use the given measures to identify three pairs of parallel segments in each diagram.



Practice 8-5

Proportions in Triangles

Use the figure at the right to complete each proportion.

1. $\frac{AD}{DG} = \frac{?}{EH}$

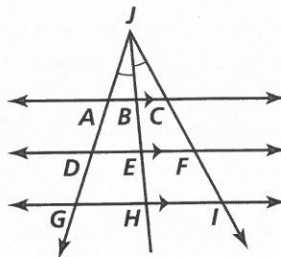
2. $\frac{CF}{BE} = \frac{FI}{?}$

3. $\frac{JA}{JC} = \frac{AB}{?}$

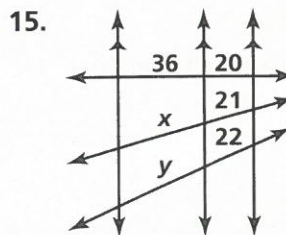
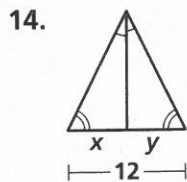
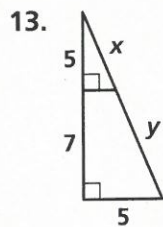
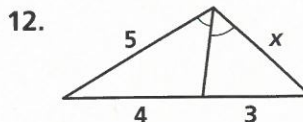
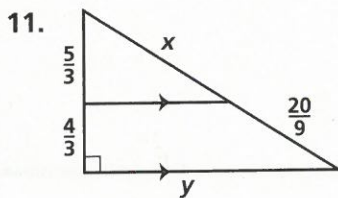
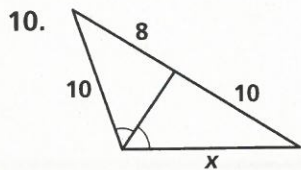
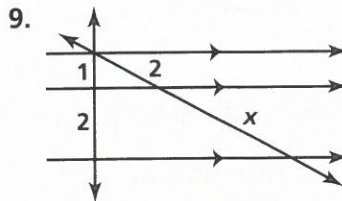
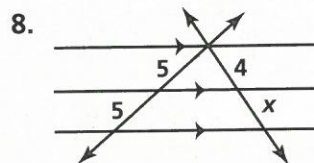
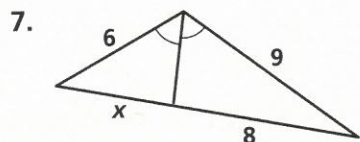
4. $\frac{JF}{FE} = \frac{?}{DE}$

5. $\frac{GH}{HI} = \frac{?}{?}$

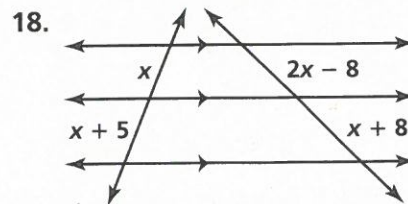
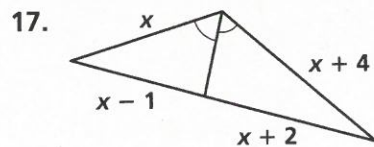
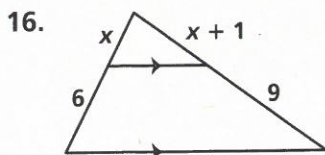
6. $\frac{AD}{AG} = \frac{?}{BH}$



Algebra Find the values of the variables.



Algebra Solve for x.



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