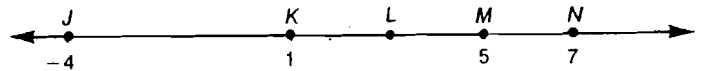


1-9: True or False?

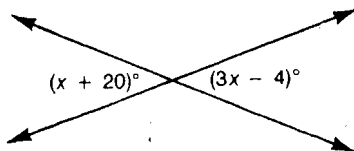
1. Through any two points there is exactly one line.
2. Through any three points there is exactly one plane.
3. Two lines intersect in exactly one point.
4. Two planes can intersect in exactly one point.
5. A line and a plane can intersect in a point.
6. Vertical angles can be complementary.
7. Two intersecting lines lie in exactly one plane.
8. A line and a point not on a line can lie in more than one plane.
9. A line contains exactly two points.

10-14: Given that L is the midpoint of \overline{KM} .

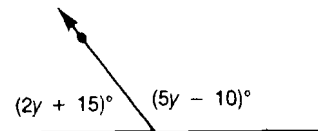


10. Another name for \overrightarrow{LM} is _____.
11. Name a ray opposite to \overrightarrow{MK} . _____.
12. The length of \overline{JL} is _____.
13. $\overline{KM} \cong$ _____
14. $JK + KL = JL$ by _____ postulate.

15. Find x .



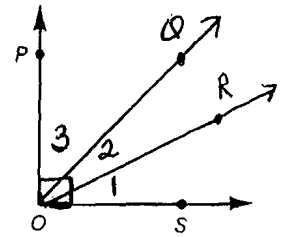
16. Find y .



17-19: $\angle POS$ is a right angle and \vec{OR} bisects $\angle QOS$.

17. $m\angle POQ + m\angle QOR = m\angle$ _____ by _____ postulate.

18. If $m\angle 1 = 2x + 15$ and $m\angle 2 = 5x - 18$, find x .

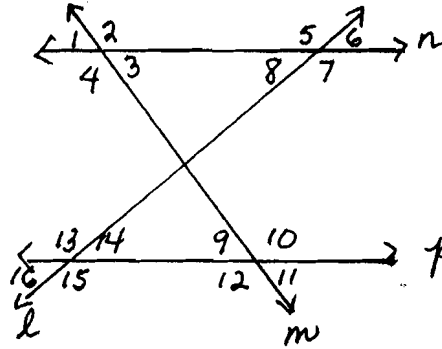


19. If $m\angle 1 = y + 7$ and $m\angle 3 = 2y$, find y .

20. If $\angle A$ and $\angle B$ are supplementary, $m\angle A = 8x$ and $m\angle B = 5x + 11$, find $m\angle B$.

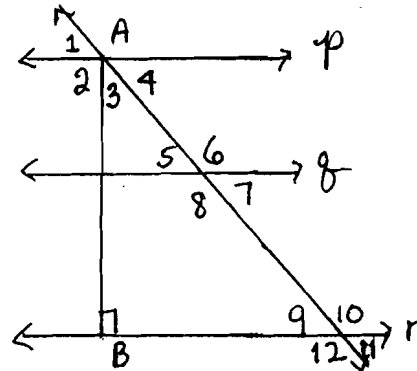
21. If $\angle C$ and $\angle D$ are complementary, $m\angle C = 2y - 2$ and $m\angle D = 5y + 8$, find $m\angle C$.

1-4: Use the figure below. Give the special angle pair name for each pair of angles.



1. $\angle 2$ and $\angle 10$
2. $\angle 4$ and $\angle 9$
3. $\angle 8$ and $\angle 14$
4. $\angle 12$ and $\angle 10$

5-10: Given $p \parallel q$, $q \parallel r$, $\overline{AB} \perp r$, and $m\angle 1 = 42$. Find the measure of each angle.

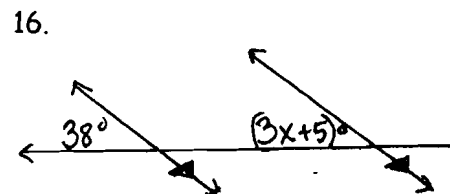
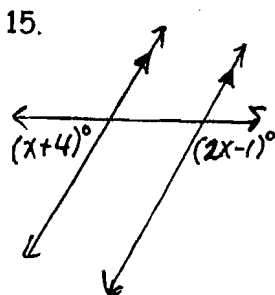


- | | |
|----------------|-----------------|
| 5. $\angle 5$ | 6. $\angle 8$ |
| 7. $\angle 10$ | 8. $\angle 2$ |
| 9. $\angle 3$ | 10. $\angle 11$ |

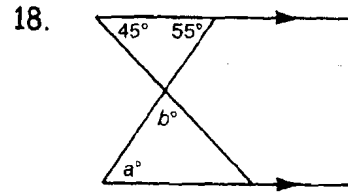
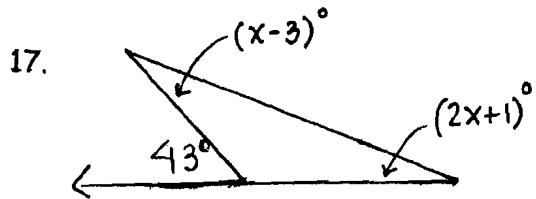
11-14: True or false? If false, draw a counterexample.

11. An obtuse triangle is never isosceles.
12. An isosceles triangle can be equilateral.
13. A right triangle can never be scalene.
14. All equilateral triangles are acute.

Find the value of x .



Find the values of x , a , and b .



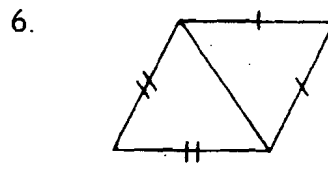
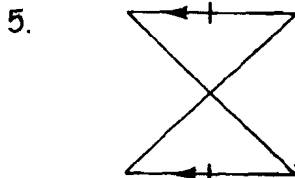
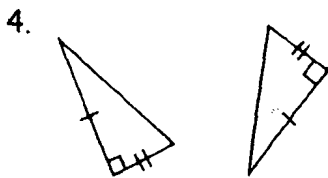
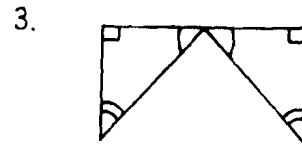
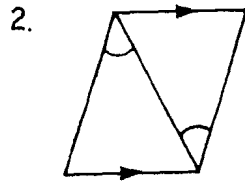
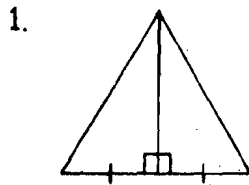
19. Find the measure of each exterior angle of a regular 30-sided polygon.

20. Find the measure of each interior angle of a regular 24-gon.

21. The measure of each angle of a regular polygon is 170° . How many sides does the polygon have?

22. Find the sum of the interior angles of a convex 50-gon.

1-6: Can the two triangles be proved congruent? If so, name the congruence method (AAS≅, ASA≅, HL≅, SAS≅, or SSS≅) used. If not, write "none".

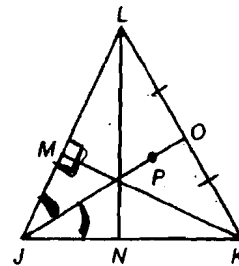


7-9: Use the figure at right.

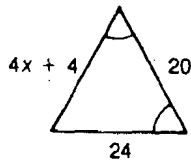
7. Name an altitude of $\triangle JKL$.

8. Name an angle bisector of $\triangle JKL$.

9. Name a median of $\triangle JKL$.



10. Find the value of x .



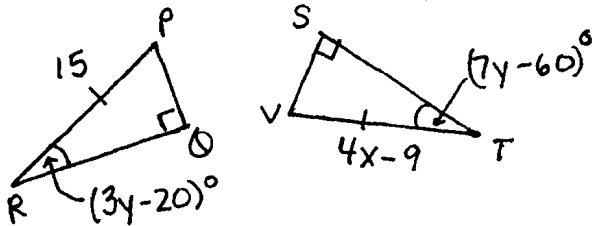
11. In isosceles $\triangle PQR$, $\angle P$ is the vertex angle. If $m\angle Q = 8x - 4$ and $m\angle R = 5x + 14$, find the measure of $\angle P$.

12. In isosceles $\triangle ABC$, $\angle B$ is the vertex angle. If $AB = 2x + 15$ and $BC = 5x - 6$, find the length of the legs.

13. Given: $\triangle KLM \cong \triangle NOP$, $KL = 25$, $KM = 18$, $OP = 23$, and $NP = 7x - 17$. Find the value of x .

14. Given: $\triangle ABC \cong \triangle DEF$, $m\angle A = 14$, $m\angle F = 29$, and $m\angle E = 10x + 7$. Find the value of x .

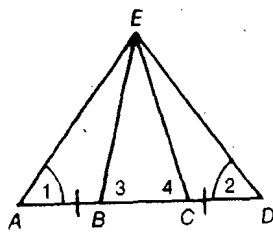
15. Find the values of x and y so that $\triangle PQR \cong \triangle VST$ by AAS.



16. Supply the missing statements and reasons.

Given: $\angle 1 \cong \angle 2$;
 $\overline{AB} \cong \overline{CD}$

Prove: $\triangle EBC$ is isosceles

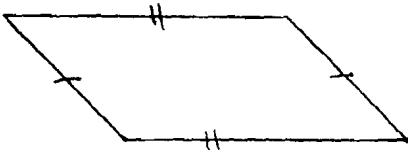


| Statements | Reasons |
|--|----------|
| 1. $\angle 1 \cong \angle 2$ | 1. _____ |
| 2. $\overline{EA} \cong \overline{ED}$ | 2. _____ |
| 3. $\overline{AB} \cong \overline{CD}$ | 3. _____ |
| 4. \triangle _____ $\cong \triangle$ _____ | 4. _____ |
| 5. $\overline{EB} \cong \overline{EC}$ | 5. _____ |
| 6. _____ | 6. _____ |

For 1-6, determine whether each statement is *always*, *sometimes*, or *never* true.

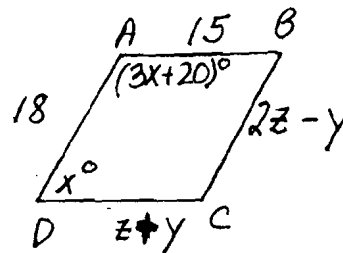
1. Diagonals of a trapezoid bisect each other.
2. Opposite angles of a rectangle are congruent.
3. Adjacent angles of a trapezoid are congruent.
4. Adjacent angles of a rhombus are right angles.
5. Diagonals of a square bisect each other.
6. A quadrilateral with one pair of opposite sides congruent and parallel is a parallelogram.

7. State the theorem that would prove that the quadrilateral shown is a parallelogram.



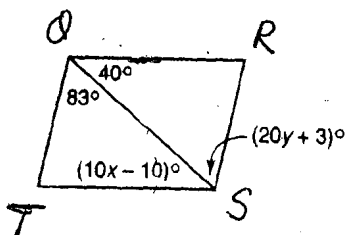
8-9: use parallelogram ABCD.

8. Find $m\angle B$.



9. Find z and y .

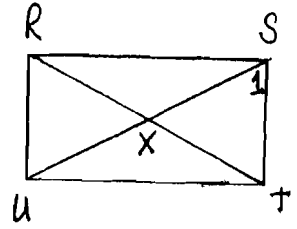
10. What values must x and y have to make QRST a parallelogram?



11-12: RSTU is a rectangle.

11. If $m\angle RXS = 120$, find $m\angle 1$.

12. If $SX = 10y - 15$ and $XU = y + 12$, find the length of \overline{RT} .



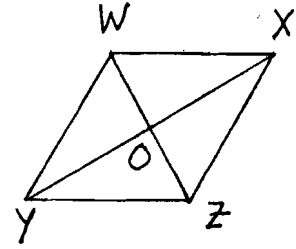
13-15: WXZY is a rhombus

13. If $m\angle WXZ = 52$, $m\angle WYX =$ _____ and

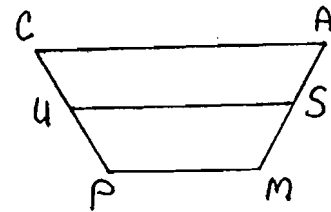
$m\angle XZY =$ _____.

14. $m\angle WOY =$ _____

15. If $YX = 27$, $XO =$ _____.

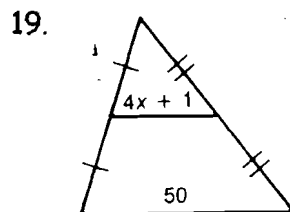
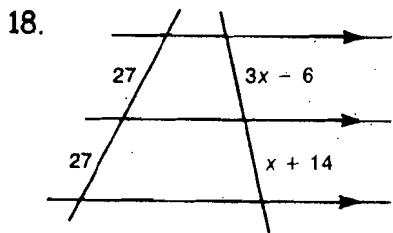


16. Given: \overline{US} is a median of trapezoid CAMP; $CA = 23$, $US = 18$. Find the length of \overline{PM} .



17. \overline{DC} is a base of isosceles trapezoid ABCD. If $m\angle D = 10x$ and $m\angle C = 5x + 30$, find $m\angle B$.

Find the value of x .



1. Write the contrapositive, converse, and inverse of the given statement.
Then classify each statement as true or false.

Given: If $\angle A$ and $\angle B$ are right angles, then they are supplements.

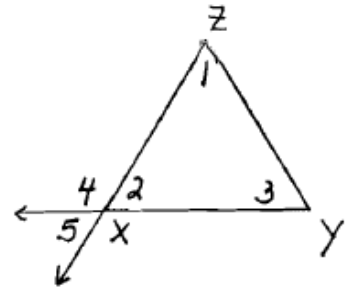
Contrapositive:

Converse:

Inverse:

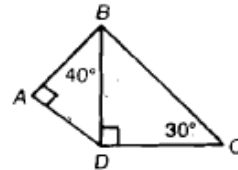
Using only the given information about $\triangle XYZ$, complete the following statements.
The given figure is NOT drawn to scale.

2. If $m\angle 1 = 65$ and $m\angle 2 = 40$, the longest side is _____.
3. If $XZ = 7$, $XY = 9$, and $ZY = 11$, the largest angle is _____.
4. Name an angle greater than $\angle 1$. _____



For 5-6, use the figure below, which is NOT drawn to scale.

5. Name the shortest segment. _____
6. Name the longest segment. _____



7. In $\triangle JKL$, $JK = 2x + 1$, $JL = 3x - 5$, and $KL = 4x - 11$. List the angles in order, from smallest to largest, if the perimeter of $\triangle JKL$ is 48. (draw figure and show work)

8. Which set of numbers can be the lengths of the sides of a triangle?

A. 5, 1, 6

B. 1.1, 13, 14.2

C. 4, 6, 3

D. 7, 17, 2

9. Two sides of a triangle are 10 cm and 18 cm. Which can be the length of the third side?

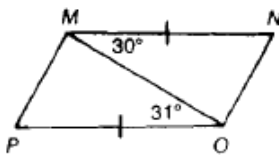
A. 7 cm

B. 3 cm

C. 28 cm

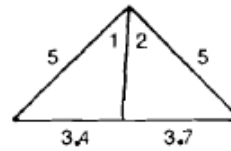
D. 20 cm

10. Which is longer, \overline{MP} or \overline{NO} ? _____



Reason: _____
(SAS or SSS Inequality theorem?)

11. Which is larger, $\angle 1$ or $\angle 2$? _____



Reason: _____
(SAS or SSS Inequality theorem?)

11. Given: $m\angle 3 \neq m\angle 4$

Prove: $\angle 3$ and $\angle 4$ are not vertical angles

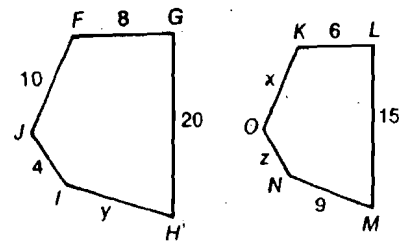
a) Write the first sentence of an indirect proof.

b) Write the last sentence of an indirect proof.

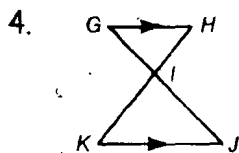
1. A 3-night stay at a hotel in Las Vegas costs \$429. How much would a 5-night stay cost?

2. Solve for x .
$$\frac{x+5}{x-5} = \frac{5}{3}$$

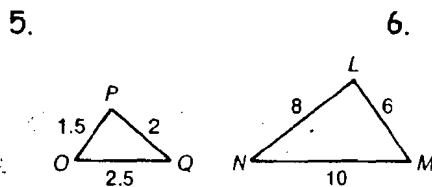
3. Pentagon $FGHIJ \sim$ pentagon $KLMNO$. Find x and y .



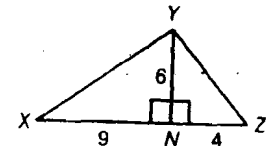
4-6: a) Name the similar triangles.
 b) State the method ($AA \sim$, $SAS \sim$, or $SSS \sim$) you could use to prove them similar.



$\triangle \sim \triangle$



$\triangle \sim \triangle$

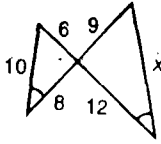


$\triangle \sim \triangle$

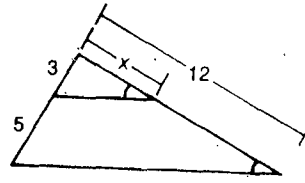
7. A tree casts a shadow 48 feet long. Nancy, who is 5 feet tall, casts a shadow 9 feet long. To the nearest tenth of a foot, how tall is the tree?

Find the value of x .

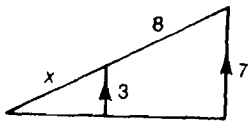
8.



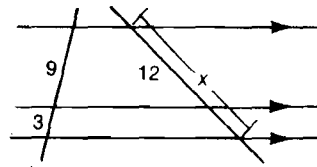
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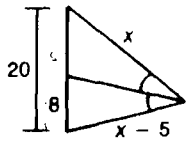
10.



11.



12.



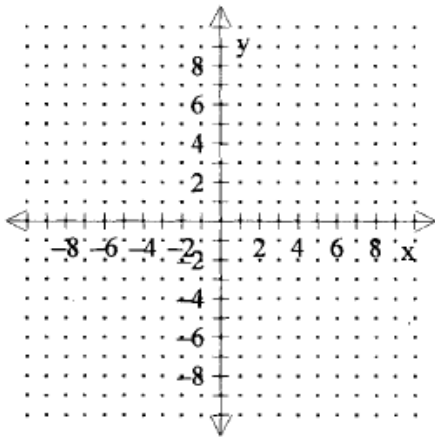
1. Given: point $A(-2, 5)$ and $B(1, -1)$.
 Find: a) distance from A to B in simplest form

b) the midpoint of \overline{AB}

c) the slope of \overline{AB}

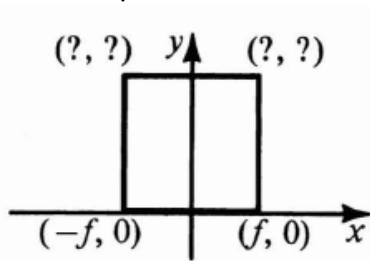
2. The slope of \overline{JK} is $-\frac{3}{7}$. a) What is the slope of a line parallel to \overline{JK} ?
 b) What is the slope of a line perpendicular to \overline{JK} ?

3. Graph a line through $(4, -1)$ with a slope of $-\frac{3}{4}$.

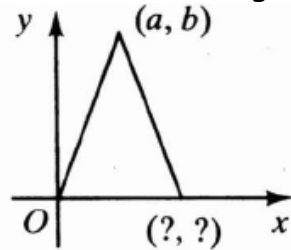


4. Fill in the missing coordinates without introducing new letters.

a) square



b) isosceles triangle



c) isosceles trapezoid

