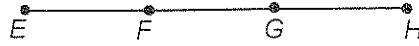


Chapter 2 (part 2)

Part D: Write complete proofs.

1. Given:  $F$  is the midpoint of  $EG$   
 $G$  is the midpoint of  $FH$

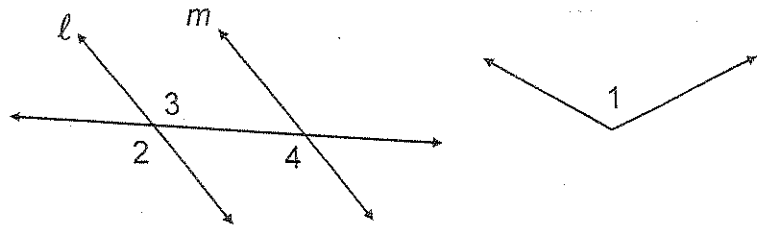


Prove:  $EF \cong GH$

Conclusions

Justifications

2. Given:  $l \parallel m$   
 $\angle 1 \cong \angle 4$



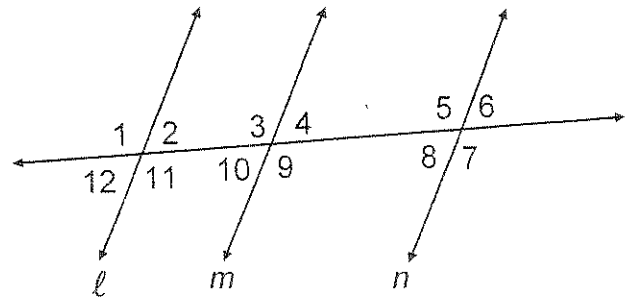
Prove:  $\angle 1 \cong \angle 2$

Conclusions

Justifications

3. Given:  $l \parallel m$ ;  $m \parallel n$

Prove:  $\angle 2 \cong \angle 8$



Conclusions

Justifications

### Chapter 3

#### Part A

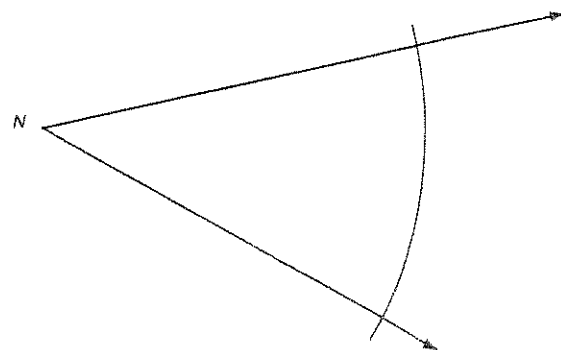
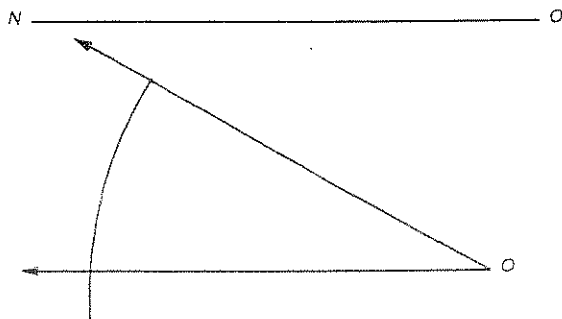
Identify each statement as true or false.

1. Every point on an angle bisector in a triangle is equally distant from the sides of the angle.
2. The circumcenter of a triangle is the center of the circle inscribed in the triangle.
3. In a right triangle the orthocenter is located at the vertex of the right angle.
4. A rhombus is a parallelogram with all of its sides equal in length.
5. If a point is equally distant from the endpoints of a segment, then it must be the midpoint of the segment.
6. The shortest distance from a point to a line is the distance measured along the perpendicular from the point to the line.
7. It is possible to construct an angle of  $15^\circ$  using a compass and a straightedge.
8. A geometric construction uses a compass and straightedge.
9. The centroid is equally distant from all three sides of a triangle.
10. The centroid of a triangle divides each median into two parts, so that the shorter part is one third the larger part.

#### Part B

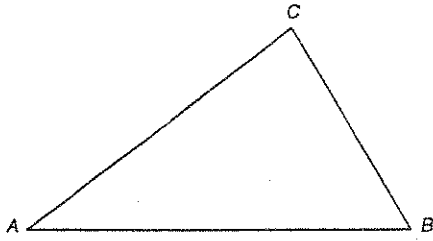
Perform the following constructions on figures on the next page.

1. Construct the circumscribed circle for  $\triangle ABC$ .
2. Construct the median  $\overline{IJ}$  in  $\triangle GHI$ .
3. Construct the altitude  $\overleftrightarrow{FG}$  in  $\triangle DEF$ .
4. Construct a line  $\overleftrightarrow{PT}$  perpendicular to  $\overleftrightarrow{AB}$  through point  $P$  ( $P$  not on  $\overleftrightarrow{AB}$ ).
5. Construct an angle of  $30^\circ$  at point  $M$ .
6. Construct the incenter of  $\triangle JKL$ .
7. Construct  $\triangle NOP$  given the segment and angles below.

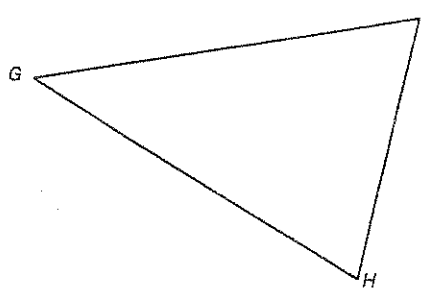


**Part B**

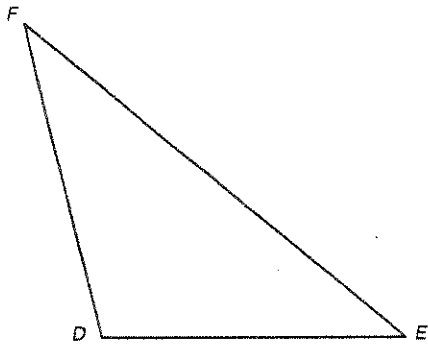
1.



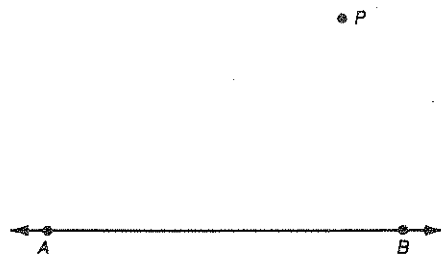
2.



3.



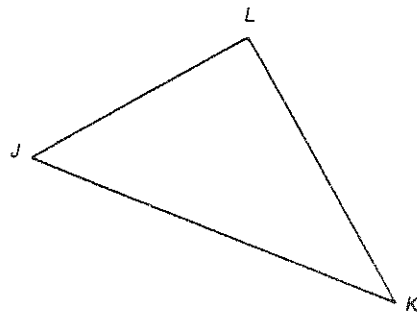
4.



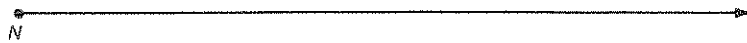
5.



6.



7.



**Chapter 4 (part 1)**

**Part A**

Identify each statement as true or false.

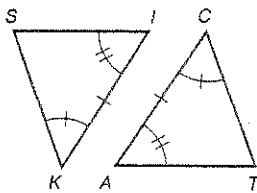
1. A triangle with all the sides equal in measure is obtuse.
2. If the coordinates of the segment with endpoints (4, -3) and (-1, 2) are reversed, the slope does not change.
3. The capital letters CPCTC are an abbreviation for the phrase: "corresponding parts of congruent triangles are congruent."
4. The sum of the measures of the three angles of an acute triangle is less than the sum of the measures of the three angles of an obtuse triangle.
5. The line through points (2, -5) and (3, -2) is parallel to the line  $y = 3x + 7$ .
6. The incenter of a triangle is the point of intersection of the three medians.
7. The orthocenter of a triangle is the point of intersection of the three medians.
8. The centroid of a triangle is the point of intersection of the three perpendicular bisectors.
9. If a triangle has two angles of equal measure, then the third angle is obtuse.
10. If the base angles of an isosceles triangle each measure  $37^\circ$ , then the vertex angle has a measure of  $106^\circ$ .

**Part B**

From the information given, determine which triangles, if any, are congruent. State the congruence conjecture that supports the congruence statement. If the triangles cannot be shown to be congruent from the information given, write "Cannot be determined."

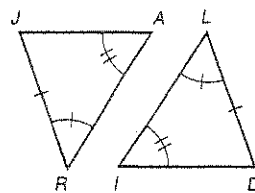
1.  $\triangle SIK \cong \triangle \text{---}$

Why?



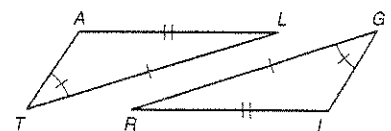
2.  $\triangle JAR \cong \triangle \text{---}$

Why?



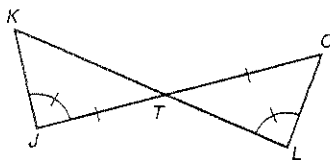
3.  $\triangle TAL \cong \triangle \text{---}$

Why?



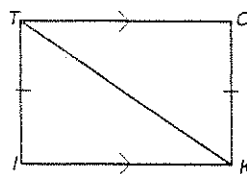
4.  $\triangle KJT \cong \triangle \text{---}$

Why?



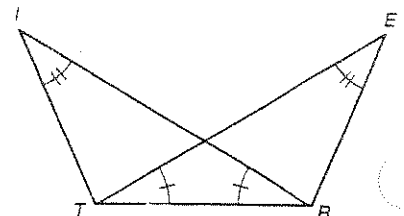
5.  $\triangle TIK \cong \triangle \text{---}$

Why?



6.  $\triangle ITR \cong \triangle \text{---}$

Why?

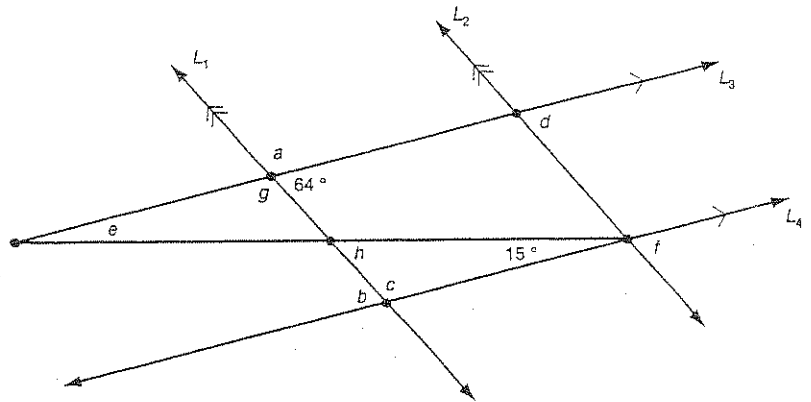


**Part C1**

Find the measure of each lettered angle in the figure below.

$l_1 \parallel l_2$  and  $l_3 \parallel l_4$

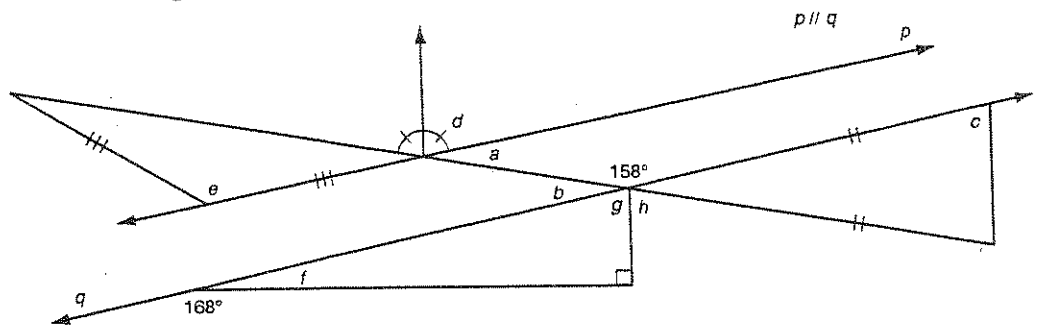
1.  $a = -?-$
2.  $b = -?-$
3.  $c = -?-$
4.  $d = -?-$
5.  $e = -?-$
6.  $f = -?-$
7.  $g = -?-$
8.  $h = -?-$



**Part C2**

Find the measure of each lettered angle in the figure below.

1.  $a = -?-$
2.  $b = -?-$
3.  $c = -?-$
4.  $d = -?-$
5.  $e = -?-$
6.  $f = -?-$
7.  $g = -?-$
8.  $h = -?-$



**Part D**

Provide each missing reason or statement in the proof.

Given:  $\angle D \cong \angle E$

$\overline{CD} \cong \overline{CE}$

Show:  $\overline{AE} \cong \overline{BD}$

Flow-chart Proof:

1.  $-?-$

2.  $-?-$

3.  $-?-$

4.  $-?-$

5.  $-?-$

6.  $-?-$

7.  $\Delta -?- \cong \Delta -?-$

8.  $-?-$

9.  $-?-$

10.  $-?-$

