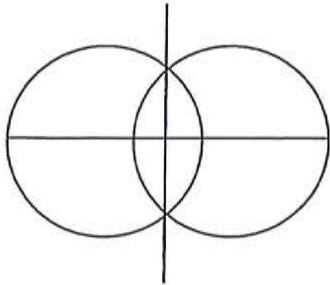


Name: _____ Date: _____ Per: _____

Topic 3 Test Review

Answer each question below. Be sure to show all work and clearly indicate any construction markings where necessary.



___ 1) Which of the following constructions are illustrated by the diagram to the left?

- (1) Angle bisector of $\angle ABD$
- (2) Perpendicular bisector of \overline{AB}
- (3) Midpoint of \overline{CD}
- (4) Perpendicular bisector of \overline{CD}

___ 2) Joey sketches a triangle inside of a circle so that each of its vertices touch 3 distinct points on the circle. Which of the following constructions can he do to the triangle to determine the center of the circle?

- (1) Construct the three angle bisectors of the triangle
- (2) Construct the three perpendicular bisectors of the triangle
- (3) Construct the diameter of the circle
- (4) Neither

Match each of the following properties to their proper example:

___ 3) Symmetric Property

a. $AB = AB$

___ 4) Reflexive Property

b. If $AB = CD$, then $AB + BC = BC + CD$

___ 5) Transitive Property

c. If $AB = CD$ and $BC = CD$, then $AB = BC$

___ 6) Addition Property of Equality

d. If $m\angle A + m\angle B = 90$ and $m\angle A = m\angle C$, then $m\angle B + m\angle C = 90$.

___ 7) Subtraction Property of Equality

e. If $AB = CD$ then $CD = AB$.

___ 8) Multiplication Property of Equality

f. If $AB = BC$, then $2AB = 2BC$.

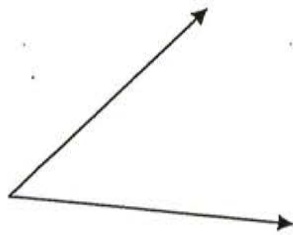
___ 9) Division Property of Equality

g. If $m\angle A + m\angle B = m\angle A + m\angle C$, then $m\angle B = m\angle C$

___ 10) Substitution Property

h. If $AB = BC$, then $\frac{AB}{3} = \frac{BC}{3}$

11) Construct the angle bisector of the angle below.

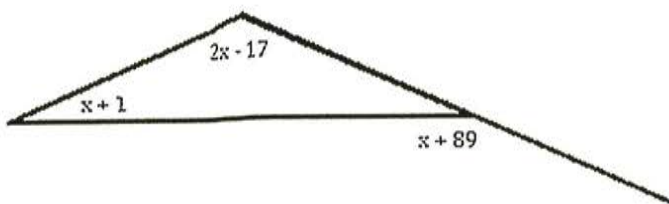


12) Construct a 60° angle at point P below.

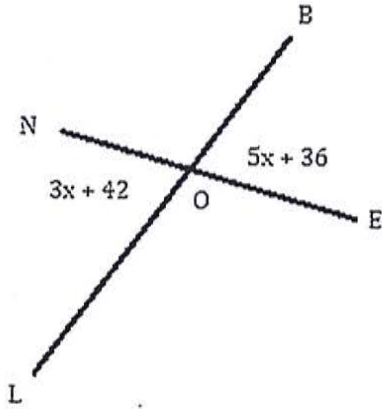
P

13) The angles of a triangle can be represented by $2x + 10$, $x + 20$ and $3x$. Determine the value of x .
Classify the triangle by angles and sides.

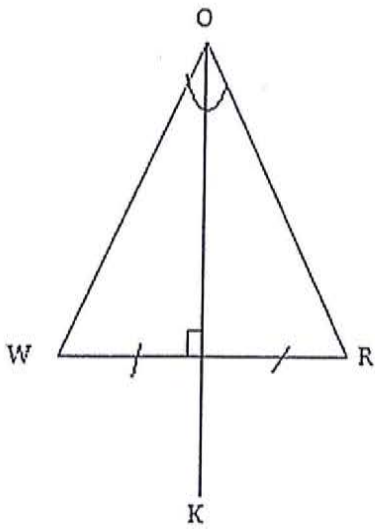
14) Find the value of x below:



15) Find $m\angle NOL$ below



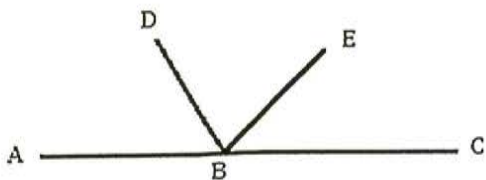
16) State 3 facts about \overline{KO} below based on the given markings.



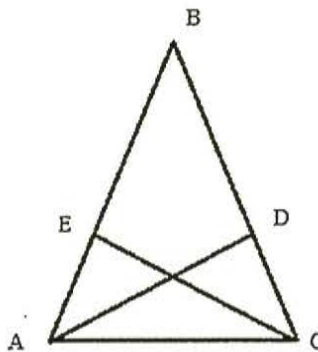
More Geometric Proofs

Use a formal proof to answer each of the following question below. Be sure to clearly identify your statements and reasons.

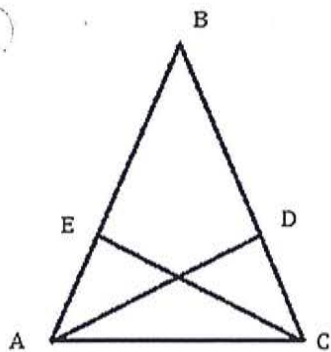
- 1) Given: \overline{ABC} , $m\angle ABE = m\angle CBD$
Prove: $m\angle ABD = m\angle CBE$



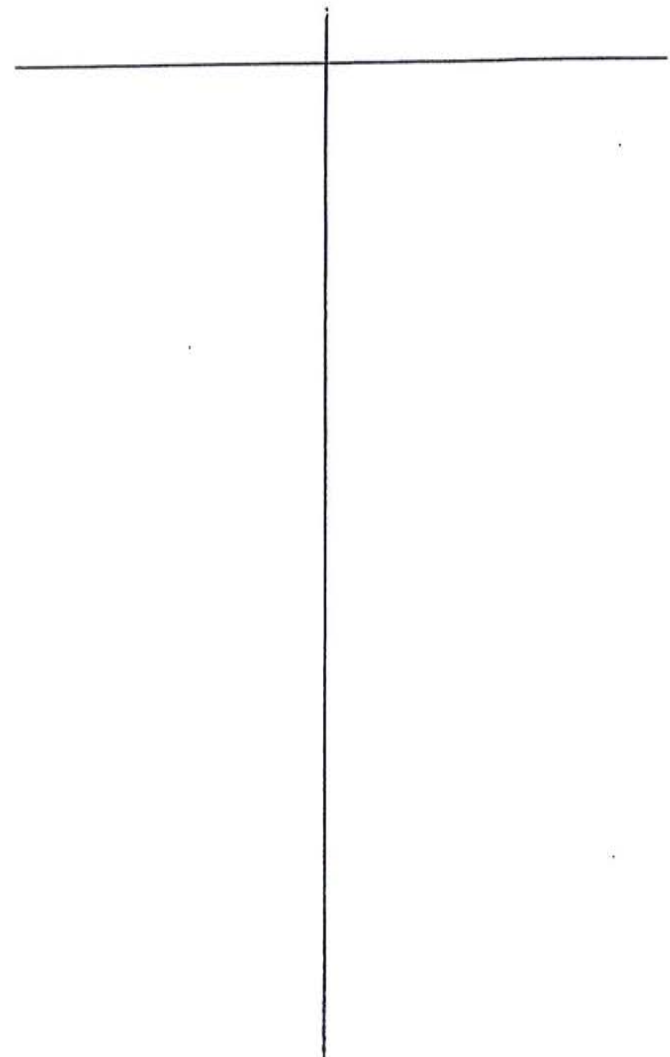
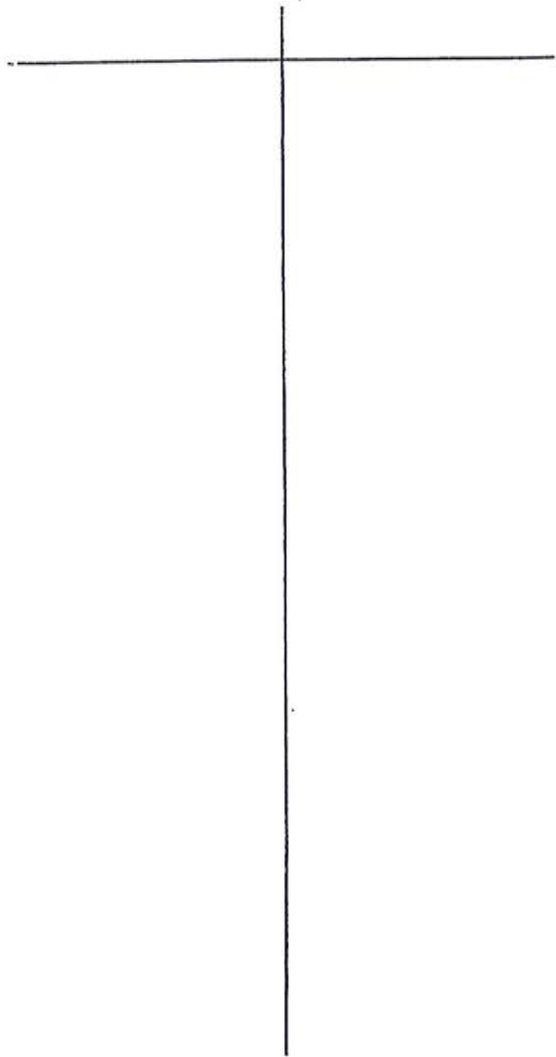
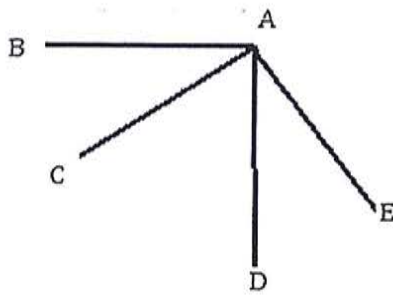
- 2) Given: $\overline{CD} \perp \overline{AB}$ and $\overline{AD} \perp \overline{BC}$
Prove: $\angle ADB \cong \angle CEB$



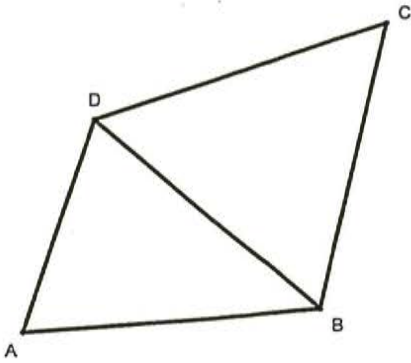
3) Given: $\overline{AB} \cong \overline{CB}$ and $\overline{EB} \cong \overline{DB}$
Prove: $\overline{AE} \cong \overline{CD}$



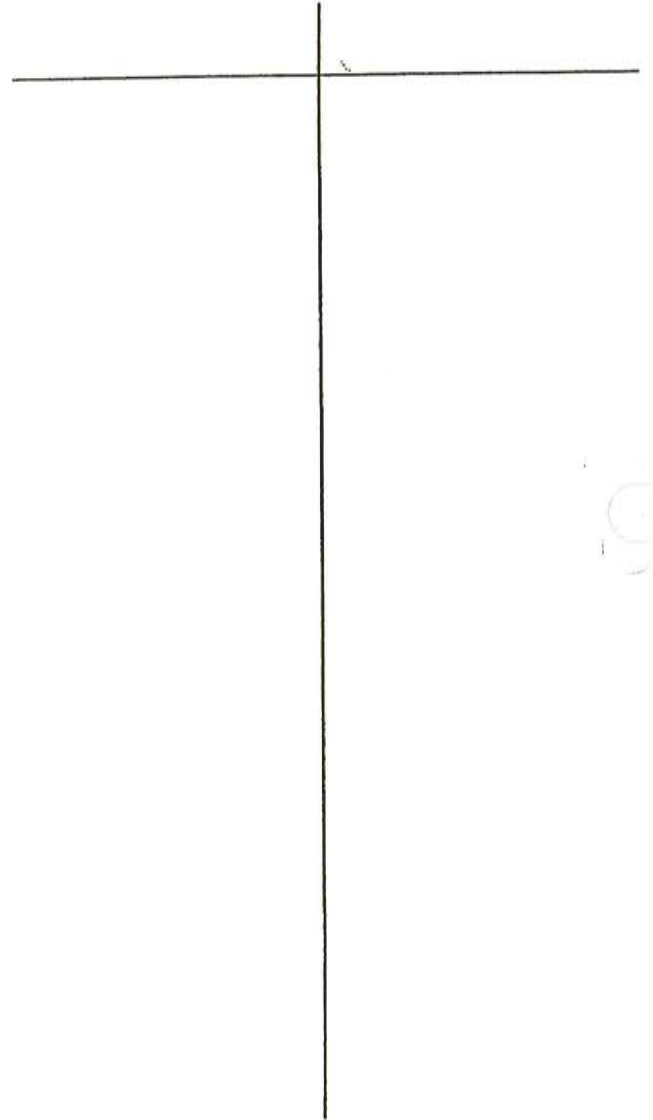
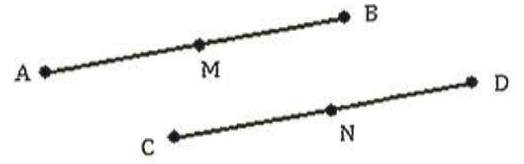
4) Given: $\overline{AD} \perp \overline{AB}$ and $\overline{AE} \perp \overline{AC}$
Prove: $m\angle BAD = m\angle EAC$



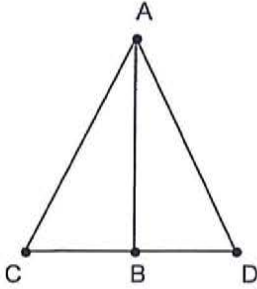
- 5) Given: $\triangle ABD$ is isosceles with vertex at B
and $\overline{AB} \cong \overline{BC}$
Prove: $\triangle CBD$ is isosceles



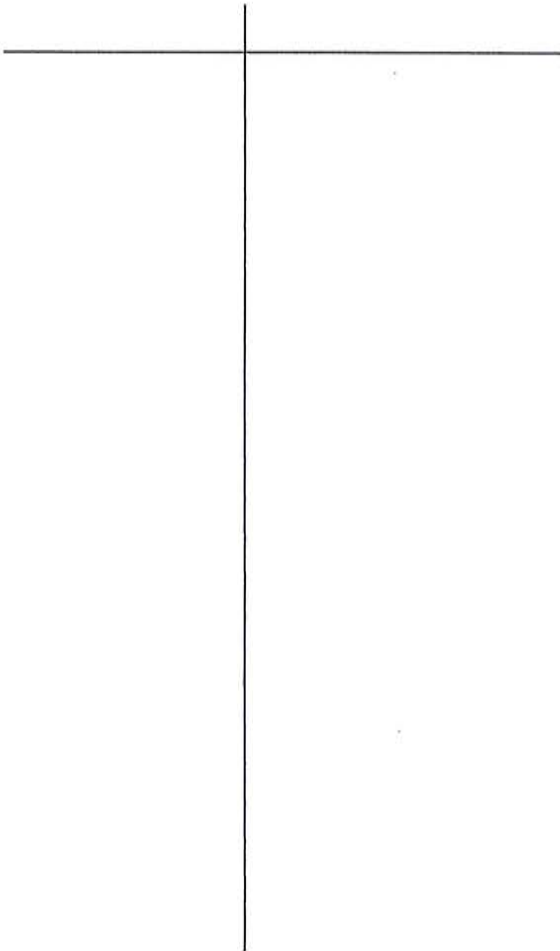
- 6) Given: M is the midpoint of \overline{AB} , $AM = CN$,
and $BM = DN$
Prove: N is the midpoint of \overline{CD}



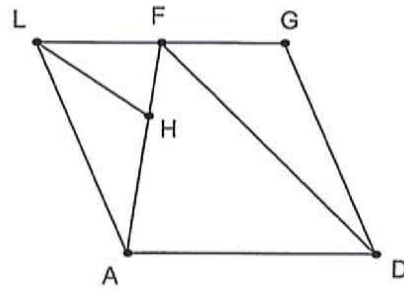
7)



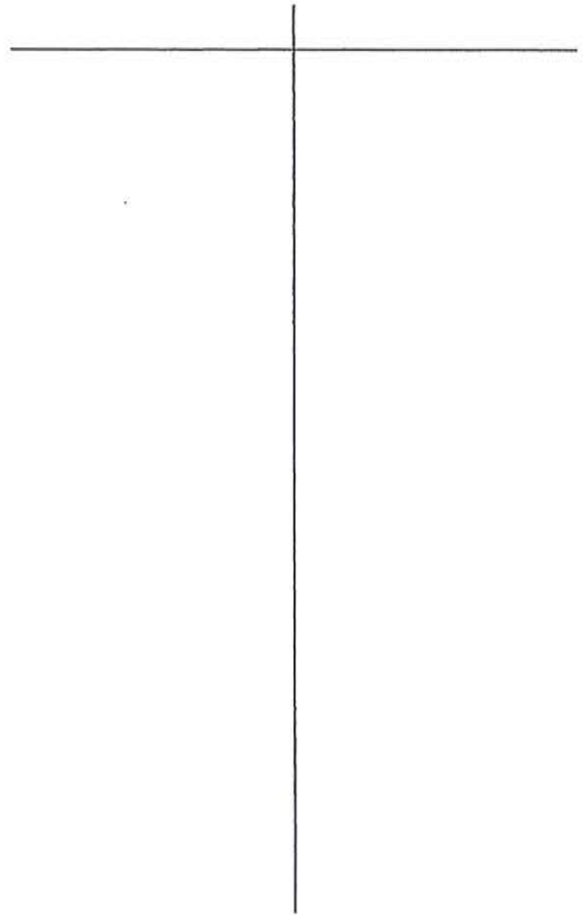
Given: In $\triangle ABD$, \overline{AB} bisects \overline{CD}
Prove: $\overline{CB} \cong \overline{BD}$



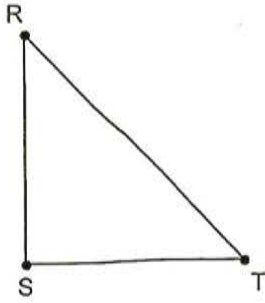
8)



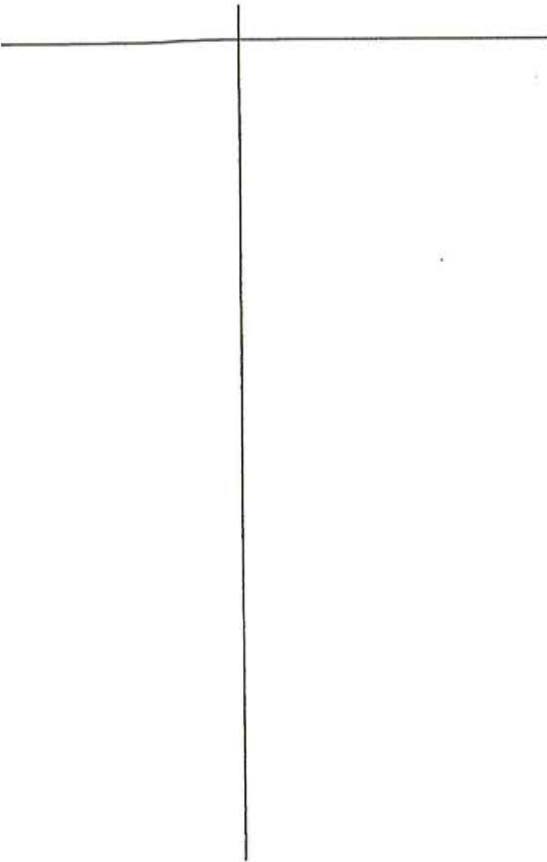
Given: In parallelogram GLAD
 \overline{HL} bisects $\angle GLA$
Prove: $\angle FLH \cong \angle ALH$



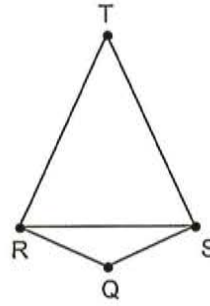
9)



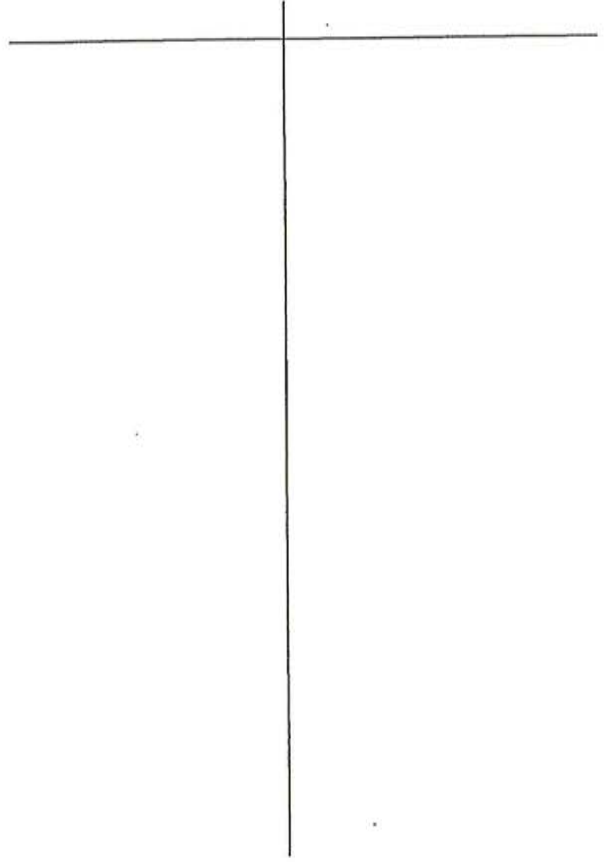
Given: In $\triangle RST$, $\overline{RS} \perp \overline{ST}$
Prove: $\triangle RST$ is a right triangle.



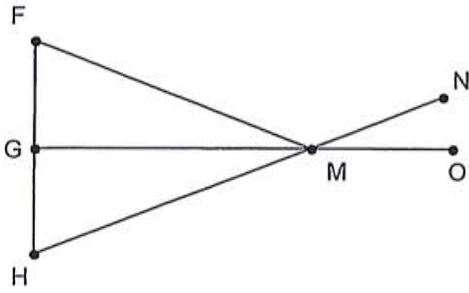
10)



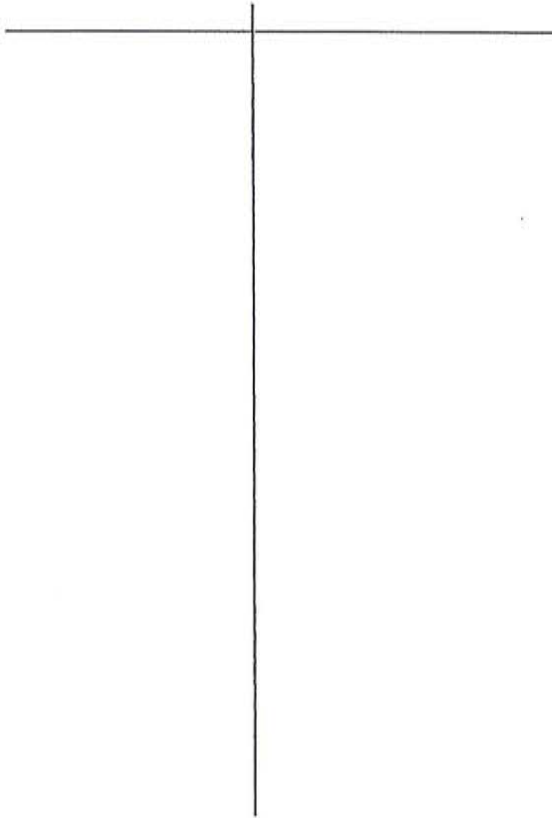
Given: $\overline{TR} \perp \overline{RQ}$, $\overline{TS} \perp \overline{SQ}$
Prove: $\angle TRQ \cong \angle TSQ$



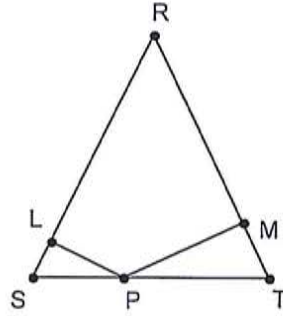
11)



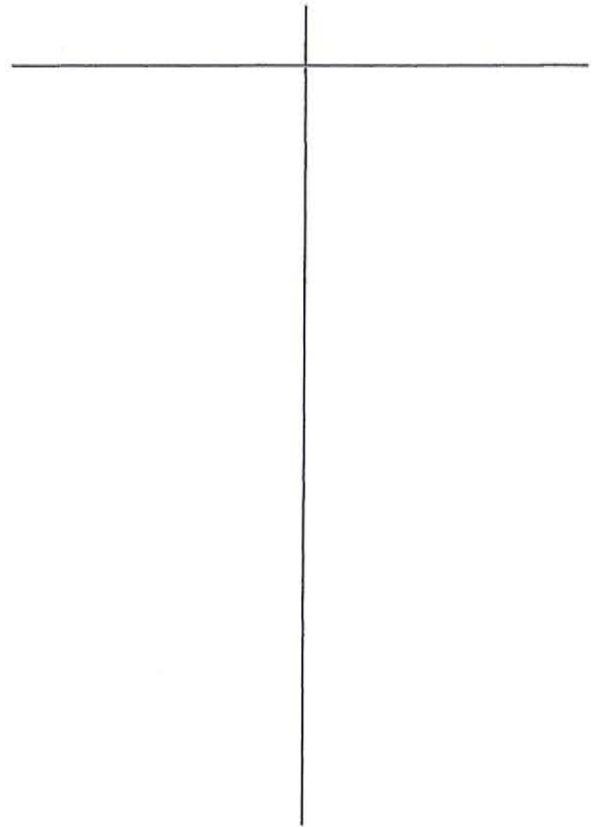
Given: \overline{GO} bisects $\angle FMH$
 \overline{GMO} and \overline{HMN} intersect at M
 Prove: $\angle FMG \cong \angle NMO$



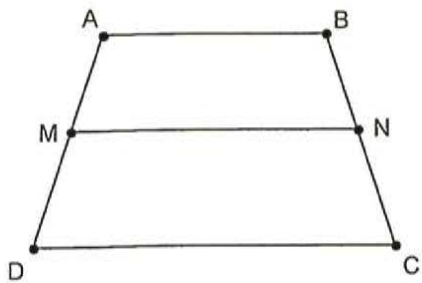
12)



Given: $\overline{PL} \perp \overline{RS}$, $\overline{PM} \perp \overline{RT}$
 Prove: $m\angle PLS = m\angle PMT$

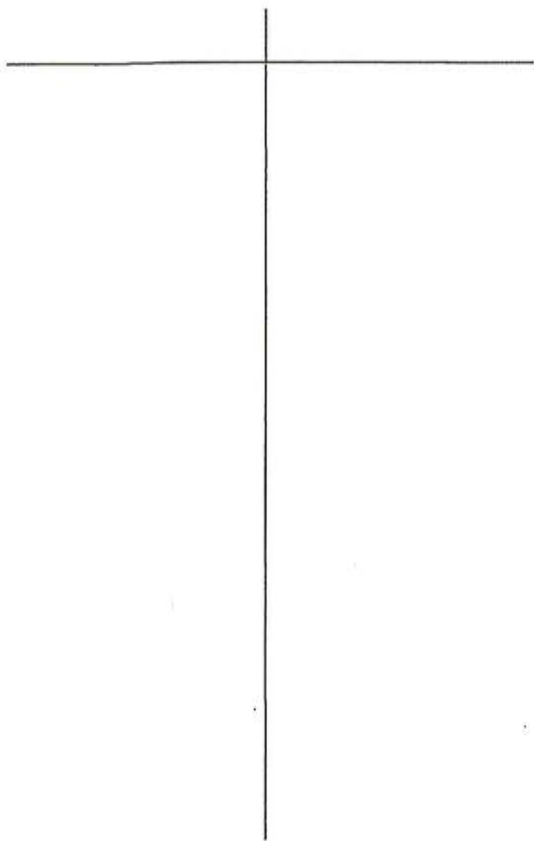


13)

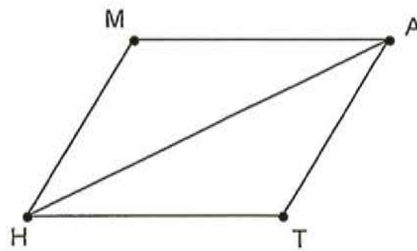


Given: $\angle 1 \cong \angle 3$, $\overline{MN} \parallel \overline{DC}$

Prove: $\angle 2 \cong \angle 4$

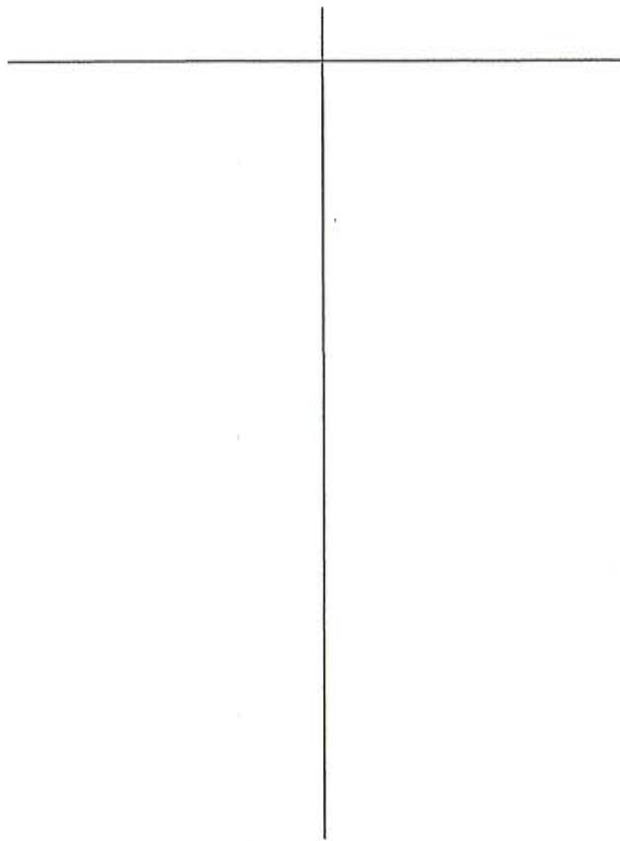


14)

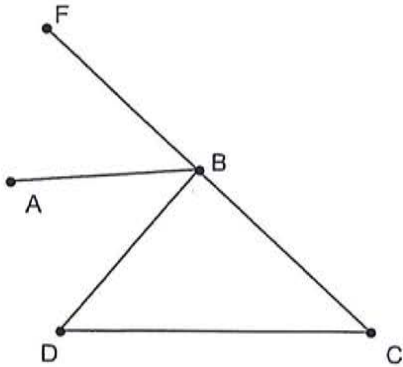


Given: $\overline{MA} \parallel \overline{TH}$

Prove: $\angle r \cong \angle s$

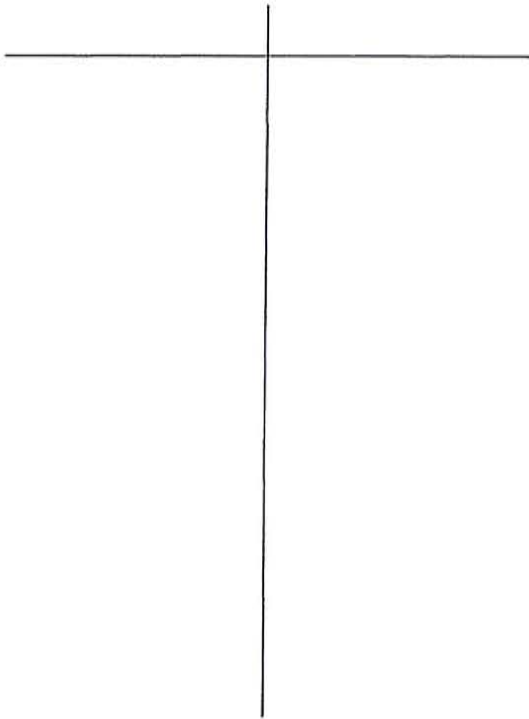


15)

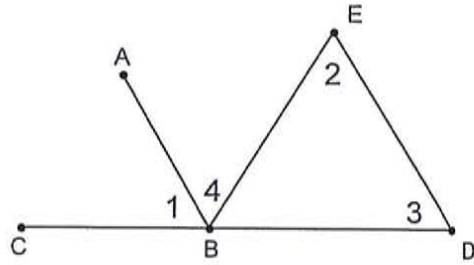


Given: \overline{BA} bisects $\angle FBD$,
 $m\angle ABD = m\angle BDC$

- a) Prove: $m\angle ABF = m\angle BDC$
 b) If $m\angle ABD = 3x + 20$ and
 $m\angle BDC = x + 40$,
 find $m\angle ABF$



16)



If \overline{BA} bisects $\angle CBE$, $\angle 1 \cong \angle 3$, and
 $\angle 2 \cong \angle 4$, then $\angle 3 \cong \angle 2$

