CHAT Geometry – First Semester Extra Credit

Instructions: Complete the work on the worksheets. Number all statements and reasons

Note: This is an open book activity. You can use your notes, your book, and your theorem sheets.

Extra Credit Amount:

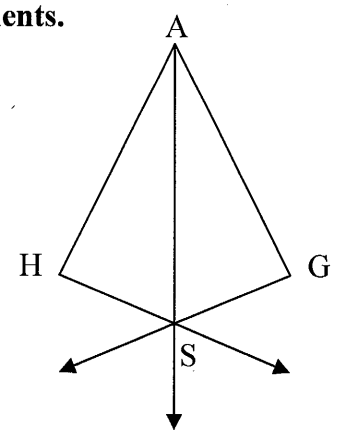
5 points for scores of 50% - 60%
8 points for scores of 61% - 74%
10 points for scores of 75% - 90%
12 points for scores of 91% - 100%

CHAT Geometry – First Semester Extra Credit

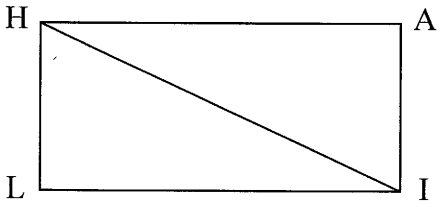
CONGRUENT TRIANGLE REVIEW

I. Use a two-column proof to justify the following statements.

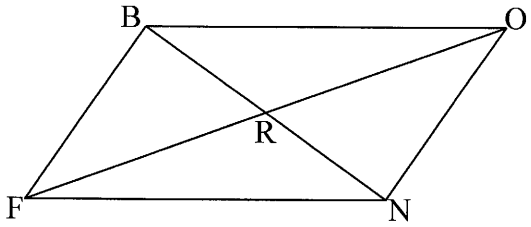
1. Given: $\overrightarrow{AS}$ bisects $\angle HAG$; $\angle H \cong \angle G$
   Prove: $\overline{HS} \cong \overline{GS}$



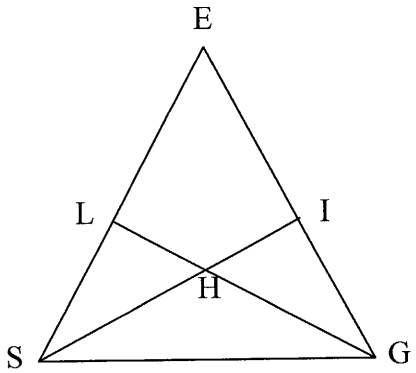
2. Given: $\overline{HL} \perp \overline{LI}$; $\overline{HA} \perp \overline{AI}$; $\overline{HA} \cong \overline{IL}$
   Prove: $\overline{HL} // \overline{IA}$



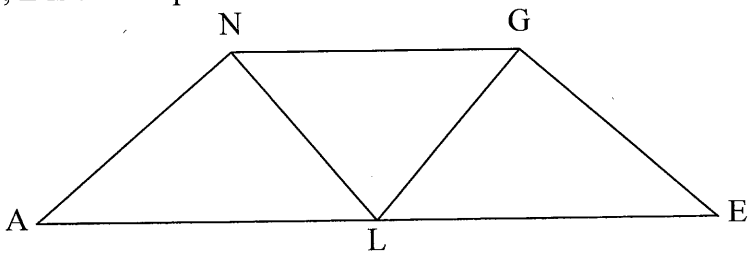
3. Given: $\overline{BF} \cong \overline{ON}$; $\overline{BF} // \overline{ON}$
   Prove: R is the midpoint of $\overline{BN}$



4. Given: $\angle LSG \cong \angle IGS; \overline{LG} \perp \overline{ES}; \overline{SI} \perp \overline{EG}$
   Prove: $\overline{EI} \cong \overline{EL}$

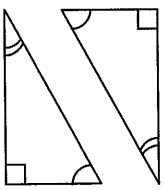


5. Given: $\overline{AN} \perp \overline{NL}; \overline{LG} \perp \overline{GE}; \angle GNL \cong \angle NGL$; L is the midpoint of $\overline{AE}$
   Prove: $\angle A \cong \angle E$

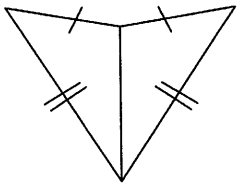


II. Name the theorem or postulate that justifies the following pairs of triangles are congruent. If there is not enough information, write none.

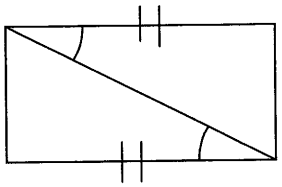
6. _____



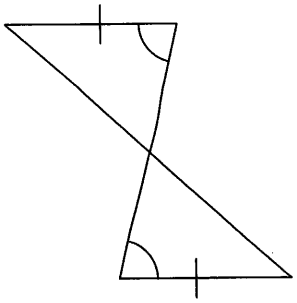
7. _____



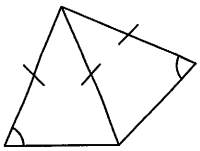
8. _____



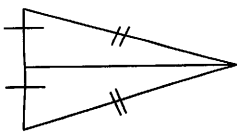
9. _____



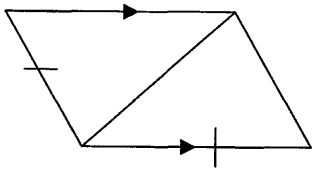
10. _____

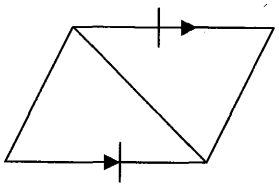


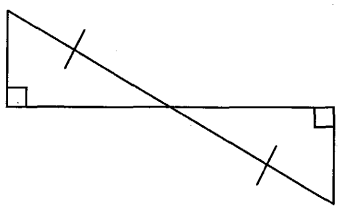
11. _____



12. _____ 13. _____ 14. _____







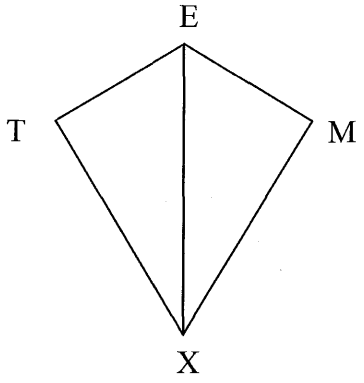
_____ 15. $\overline{EX}$ bisects $\angle TEM$, $\overline{TE} \cong \overline{EM}$

_____ 16. $\overline{TE} \perp \overline{XT}$, $\overline{ME} \perp \overline{XM}$, $\angle TEX \cong \angle MEX$

_____ 17. $\overline{TE} \cong \overline{EM}$, $\overline{TX} \cong \overline{XM}$

_____ 18. $\overline{TX} \cong \overline{XM}$, $\overline{EX}$ bisects $\angle TEM$

_____ 19. $\overline{EX}$ bisects $\angle TXM$, $\angle T \cong \angle M$

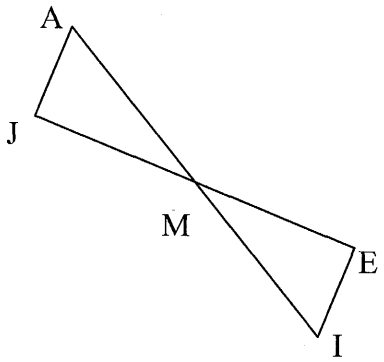


_____ 20. M is the midpoint of $\overline{JE}$, $\angle A \cong \angle I$

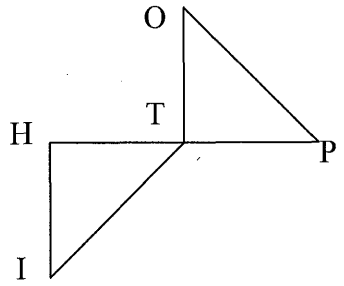
_____ 21. $\overline{JA} \perp \overline{JE}$, $\overline{EI} \perp \overline{JE}$, $\overline{JM} \cong \overline{EM}$

_____ 22. M is the midpoint of $\overline{JE}$, $\overline{AJ} \cong \overline{IE}$

_____ 23. $\overline{JA} \perp \overline{JE}$, $\overline{EI} \perp \overline{JE}$, $\angle A \cong \angle I$



III. Given that $\Delta HIT \cong \Delta TOP$, write an equation and solve for x in each of the following.

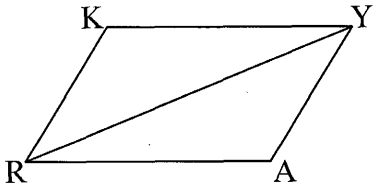


24. HT = 2x + 10, TP = 4x + 6, TO = 6x – 6

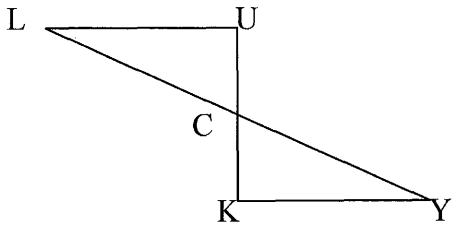
25. IT = 4x + 20, OT = 6x, IH = 2x + 44

II. Proofs

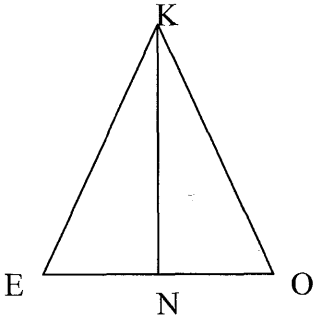
26. Given: $\overline{KY} \cong \overline{RA}$, $\overline{KY} \parallel \overline{RA}$
Prove: $\overline{KR} \cong \overline{AY}$



27. Given: $\overline{LU} \perp \overline{KU}$, $\overline{YK} \perp \overline{KU}$, C is the midpoint of $\overline{LY}$
Prove: $\overline{LU} \cong \overline{YK}$



28. Given: $\overline{KN}$ bisects $\angle EKO$, $\overline{KN} \perp \overline{EO}$
Prove: $\overline{KE} \cong \overline{KO}$



29. Given: $\overline{JN} \parallel \overline{AM}$, D is the midpoint of $\overline{JA}$
Prove: $\overline{ND} \cong \overline{MD}$