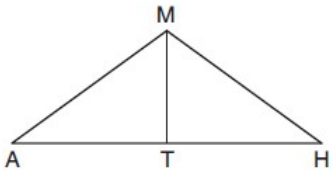
Name _____ Date _____
Mr. Schlansky Geometry

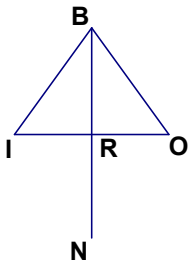
Triangle Proofs Review Sheet

1. Segment AB is the perpendicular bisector of $\overline{CD}$ at point M. Which statement is always true?
1) $\overline{CB} \cong \overline{DB}$
2) $\overline{CD} \cong \overline{AB}$
3) $\Delta ACD \cong \Delta BCD$
4) $\Delta ACM \cong \Delta BCM$

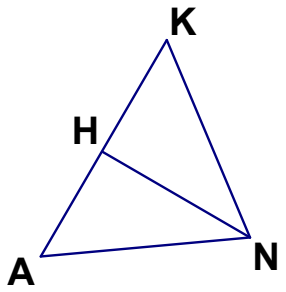
2. In triangle MAH below, $\overline{MT}$ is the perpendicular bisector of $\overline{AH}$.
Which statement is *not* always true?
1) $\triangle MAH$ is isosceles. 2) $\triangle MAT$ is isosceles. 3) $\overline{MT}$ bisects $\angle AMH$. 4) $\angle A$ and $\angle TMH$ are complementary.



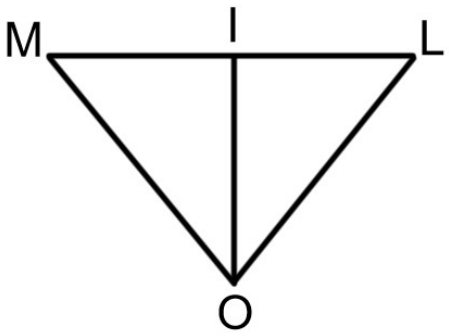
3. Given: $\overline{NB}$ bisects $\angle$ IBO, $\overline{BR} \perp \overline{IO}$
Prove: $\angle$ BIO $\cong$ $\angle$ BOI



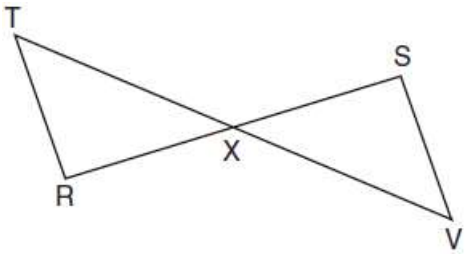
4. Given: $\overline{HN} \perp \overline{KA}$, $\overline{KN} \cong \overline{AN}$
Prove: $\angle HAN \cong \angle HKN$



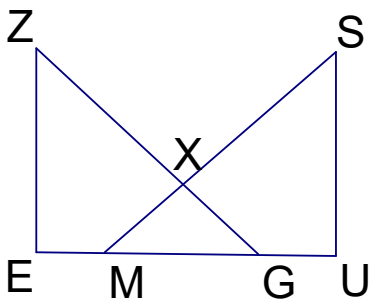
5. Given: $\overline{OI}$ is the perpendicular bisector of $\overline{ML}$
Prove: ΔMLO is isosceles



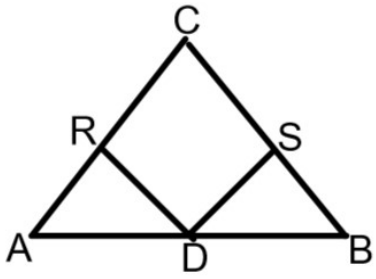
6. Given: $\overline{RS}$ and $\overline{TV}$ bisect each other at point X
$\overline{TR}$ and $\overline{SV}$ are drawn
Prove: $\overline{TR} \parallel \overline{SV}$



7. Given: $\overline{ZE} \perp \overline{EU}$, $\overline{SU} \perp \overline{EU}$, $\overline{ZE} \cong \overline{SU}$, $\overline{EM} \cong \overline{GU}$
Prove: $\angle Z \cong \angle S$



8. Given: In ΔABC, $\overline{CA} \cong \overline{CB}$, $\overline{AR} \cong \overline{BS}$, $\overline{DR} \perp \overline{AC}$, and $\overline{DS} \perp \overline{BC}$
Prove: $\overline{DR} \cong \overline{DS}$

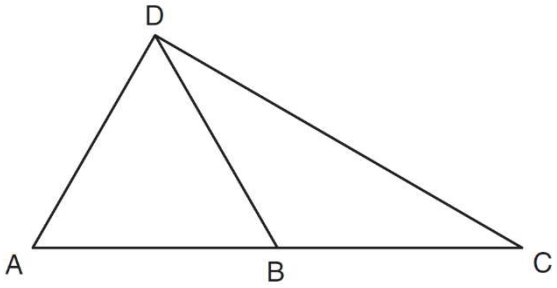


Spiral Review

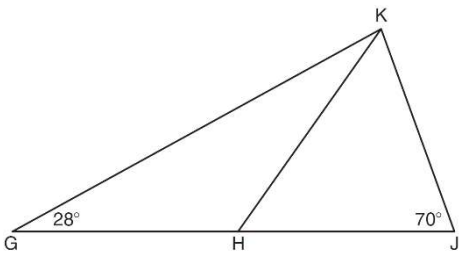
Complex Triangle Problems:

1) The three angles of a triangle add to equal 180º. Look for triangles.
2) Linear pairs add to 180º. Look for linear pairs.
3) Isosceles triangle has congruent angles opposite congruent sides (given congruent sides).
4) Equilateral triangle has angles 60, 60, 60 (given equilateral triangle).
5) An angle bisector cuts an angle into two congruent halves (given bisected angles).
6) Use parallel lines cut by a transversal (extend and follow the transversal, fill in 8 angles.)

9. In the diagram below of $\triangle ACD$, B is a point on $\overline{AC}$ such that $\triangle ADB$ is an equilateral triangle, and $\triangle DBC$ is an isosceles triangle with $\overline{DB} \cong \overline{BC}$. Find $m\angle C$.



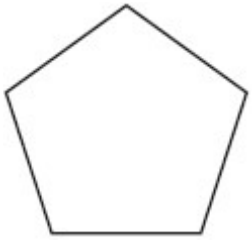
10. In the diagram below of $\triangle GJK$, H is a point on $\overline{GJ}$, $\overline{HJ} \cong \overline{JK}$, $m\angle G = 28$, and $m\angle GJK = 70$. Determine whether $\triangle GHK$ is an isosceles triangle and justify your answer.



Rotating Regular Polygons onto Themselves

1) The minimum rotation is $\frac{360}{n}$.
2) Any multiple of that will also map the regular polygon onto itself!

11. The regular polygon below is rotated about its center. Which angle of rotation will carry the figure onto itself?



1) 60°
2) 108°
3) 216°
4) 540°

12. Which of the following rotations would not map an equilateral triangle onto itself?

(1) 120º (3) 180º
(2) 240º (4) 480º

Triangle Inequality Theorem

The two smallest sides of a triangle must add to be greater than the third side

13. Which of the following cannot make up the three sides of a triangle?

1) {3,5,4} 3) {9,7,5}
2) {2,2,3} 4) {6,1,4}

14. Which of the following can make up the three sides of a triangle?

1) {2,4,2} 3) {8,1,6}
2) {1,7,4} 4) {5,5,7}