Review and Congruent Triangles Exam

Mr Woods

**Review and Congruent Triangles**

**Part I: Multiple Choice. Answer all questions in this section. Circle your answer.**

1. If two sides of a scalene triangle measure 12 and 14, the length of the third side could be:
   (1) 12  
   (2) 2  
   (3) 20  
   (4) 26

2. One method that **cannot** be used to prove two triangles congruent is
   (1) AAS  
   (2) SSA  
   (3) SAS  
   (4) HL

3. In the accompanying diagram T is the midpoint of SD and YU. What method can be used to prove \( \triangle STY \cong \triangle DTU \)?
   ![Diagram](image)
   (1) AAS  
   (2) SSA  
   (3) AAS  
   (4) SAS

5. In the diagram below of \( \triangle AGE \) and \( \triangle OLD \), \( \angle AGE \) and \( \angle OLD \) are right angles, \( GE \cong LD \).
   ![Diagram](image)

   To prove that \( \triangle AGE \) and \( \triangle OLD \) are congruent by HL, what other information is needed?
   (1) \( AG \cong OL \)  
   (2) \( \angle GAE \cong \angle LOD \)  
   (3) \( AE \cong OD \)  
   (4) \( \angle GEA \cong \angle LDO \)

6. In the diagram below of \( \triangle ABC \) and \( \triangle DEF \) below, \( AB \cong DE \), \( \angle A \cong \angle D \), and \( \angle B \cong \angle E \).
   ![Diagram](image)

   Which method can be used to prove \( \triangle ABC \cong \triangle DEF \)?
7. In ΔABC, \( \overline{AB} \cong \overline{AC} \). The measure of \(<B \) is 40°. What is the measure \(<A\)?
- (1) 40°
- (2) 50°
- (3) 70°
- (4) 100°

8. In the diagram below of right triangle ACB, altitude CD is drawn to hypotenuse AB. If \( AB = 36 \) and \( AC = 12 \), what is the length of AD?
- (1) 6
- (2) 4
- (3) 32
- (4) 3

10. What is the point of concurrency of the three altitudes of a triangle?
- (1) orthocenter
- (2) incenter
- (3) centroid
- (4) circumcenter

11. In triangle ABC, \( m<A = x \), \( m<B = 2x + 2 \), and \( m<C = 3x + 4 \). What is the value of \( x \)?
- (1) 29
- (2) 31
- (3) 59
- (4) 61

12. Which is true about the angle bisectors of all three angles of any triangle?
- (1) They do not intersect.
- (2) They intersect in a single point.
- (3) They intersect in two points.
- (4) They intersect in three points.

14. What is the length of a diagonal of a square whose side is 8?
- (1) \( \sqrt{2} \)
- (2) \( 2\sqrt{2} \)
- (3) \( 4\sqrt{2} \)
- (4) \( 8\sqrt{2} \)

15. In a 30-60-90 right triangle, if the side opposite the 30 degree angle is equal to 20, what is the length of the hypotenuse?
- (1) \( \sqrt{3} \)
- (2) 10
- (3) 40
- (4) \( 20\sqrt{3} \)
Part II: Free-Response. Answer all of the proofs in this section using the formal statement-reason column method. Make sure you mark up your diagrams and use all of the givens.

16. **Given:** NW bisects <SNO
    \[ SN \cong ON \]
    **Prove:** \( \triangle SNW \cong \triangle ONW \)
17. **Given:** R is the midpoint of CS and IH

**Prove:** $\triangle CHR \cong \triangle SRI$
18) **Given:** M is the midpoint of AB
    AC ≅ MD
    CM ≅ DB

**Prove:** Δ ACM ≅ Δ MDB