Geometry Quiz: Angles and Proofs

Multiple Choice Questions

1. What is the sum of angles in a triangle?
   a) 90°
   b) 180°
   c) 270°
   d) 360°

2. If two angles are complementary, their sum is:
   a) 45°
   b) 90°
   c) 180°
   d) 360°

3. In a right triangle, the two non-right angles are always:
   a) Obtuse
   b) Acute
   c) Right
   d) Supplementary

4. Vertical angles are always:
   a) Complementary
   b) Supplementary
   c) Congruent
   d) Different

5. The exterior angle of a triangle is equal to:
   a) The sum of two adjacent interior angles
   b) The sum of all interior angles
   c) 180° minus one interior angle
   d) None of the above

Short Answer Questions

6. Define what it means for two angles to be supplementary.

7. Explain what alternate interior angles are and when they are congruent.

Proof Question

8. Prove that the sum of the measures of the interior angles of a triangle is 180°.

Given: $\triangle ABC$
Prove: $\angle A + \angle B + \angle C = 180°$

Provide a step-by-step proof using the following structure:
- Statements
- Reasons

Angle Calculation

9. In $\triangle XYZ$, $\angle X = 35°$ and $\angle Y = 85°$. Calculate $\angle Z$.

10. If two angles of a triangle are 42° and 73°, what is the measure of the third angle?

This quiz covers various aspects of angles and basic proofs in geometry, suitable for 10th-grade students. It includes multiple choice questions to test basic knowledge, short answer questions to assess understanding, a proof question to evaluate logical thinking and proof-writing skills, and calculation questions to apply angle relationships in triangles.