

**Geometry**  
**Quiz 4**

**Name:** \_\_\_\_\_

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

- (1) (What kind of mathematical object is it?) Circle the concepts which we have defined to be sets of points.
- (a) a point
  - (b) a segment
  - (c) a ray
  - (d) an angle
  - (e) a triangle

Items (b), (c), (d), (e) are sets of points, but (a) is not.

- (2) Assume that  $A * B * C$  holds. Explain why  $\overline{AB} \subseteq \overline{AC}$  holds.

We must show that if  $X \in \overline{AB}$ , then  $X \in \overline{AC}$ . There are three cases:

- (a) If  $X = A$ , then  $X = A \in \overline{AC}$ , since it is an endpoint.
- (b) If  $X = B$ , then  $X = B \in \overline{AC}$ , since  $A * B * C$  holds.
- (c) If  $A * X * B$  holds, then since  $A * B * C$  holds it follows from Exercise 7.1(b) that  $A * X * C$  holds, and therefore  $X \in \overline{AC}$ .