Chapter 5 Open-Ended Assessment Questions:



*Sample answer:* When you pull the ends of the sticks apart the rubber band will get bigger. This illustrates the SAS Inequality Theorem. The SAS Inequality Theorem states that for 2 triangles, **if** 2 sides of the 1st triangle are congruent to 2 sides of the 2nd triangle **and if** the included angle of the 2nd triangle is greater than the included angle of the 1st triangle **then** the 3rd side in the 2nd triangle opposite the greater included angle will be longer than the 3rd side of the 1st triangle



For question 1 on the assignment we can visualize the before and after image of our triangle as the 2 triangles in the theorem (see below picture). The 2 sticks do not get bigger so they are the 2 sides in the 1st triangle that are congruent to the 2 sides of the 2nd triangle. The act of pulling the two sticks apart is the same thing as increasing the angles between them (to increase the angle I have to pull the two side of the angle apart). So in the after triangle the angle between the sticks is greater than the angle in the before triangle. Since the 3rd side is a rubber band attached to the two sticks, this causes the 3rd side in the after triangle to be greater than the 3rd side of the before triangle which is the exact same conclusion of the SAS Inequality Theorem.



*Now you don’t have to go in this much detail (notice the questions doesn’t same explain) but you have to mention how 1st the angle increase which causes the 3rd side to increase... not the other way around or else that is the SSS Inequality Theorem.*

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*The question wants you to explain your answer. So make sure you explain how whenever you describe the distance between 2 things you always give the shortest distance. And remember the shortest distance is always a path that is perpendicular to the 2 locations.*



*Have to explain how you know there is enough space to the left and right of the shortest distance line coming straight down from B.*



*Have to be precise and use a ruler and protractor to make sure that the 3 altitude are exactly 90 degree to the sides of the triangle (note sometimes you have to extend the side of the triangle so that the altitude can form a 90 degree angle with it).*

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*\*\*The hand out explains SAS Inequality. If you clearly state the two theorems you will see that the main difference is that the SAS Inequality Theorem is used to prove angle-side relationships in 2 triangles whereas the other theorem is used to prove angle-side relationships in 1 triangle. But the relationship is always the same: the greater side is opposite the greater angle and vice a versa. The SAS inequality theorem just needs more requirements before you can make its conclusion (e.g. two pairs of angles have to be congruent)*