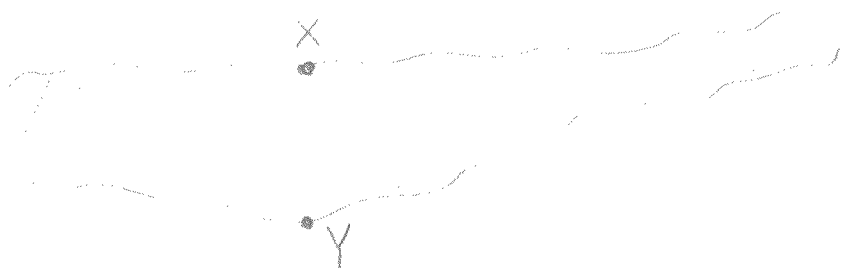


Chapter 4 Performance Task – Estimating the Distance Across a Canyon – Level 2

Based on the “Bug” Book, Pg 217

Sarah wants to estimate the distance across the canyon shown in the diagram below. She stands at Point Y and locates a tree at point X directly across the canyon to the north. She then walks west along the canyon 500 feet and marks point A. After walking another 500 feet in the same direction, at point B, she turns 90° and walks south, perpendicular to the canyon. She stops at point C when her location seems to form a straight line with points A and X. Sarah measures BC as 327 feet.

Task: What is the distance across the canyon?



Label the diagram. Include all the given information.

Which angles do you know to be congruent? Explain. _____

Which sides do you know to be congruent? Explain. _____

State the definition of congruent triangles. _____

Can you conclude that the triangles are congruent using the definition of congruent triangles? If not, what additional information would you need? _____

What congruence postulate or theorem can you use to prove the triangles congruent? _____

Write a proof that the two triangles are congruent using only information that was given in the problem.

Now you can conclude that $\overline{XY} \cong$ _____ because _____
_____.

Based on your proof, what is the approximate distance across the canyon? _____

If you are hiking and get to a river, show how you could stay on your side of the river and use only the length of your stride and a compass (N, S, W, E) to determine the width of the river. Use both a diagram and several sentences to explain your method.
