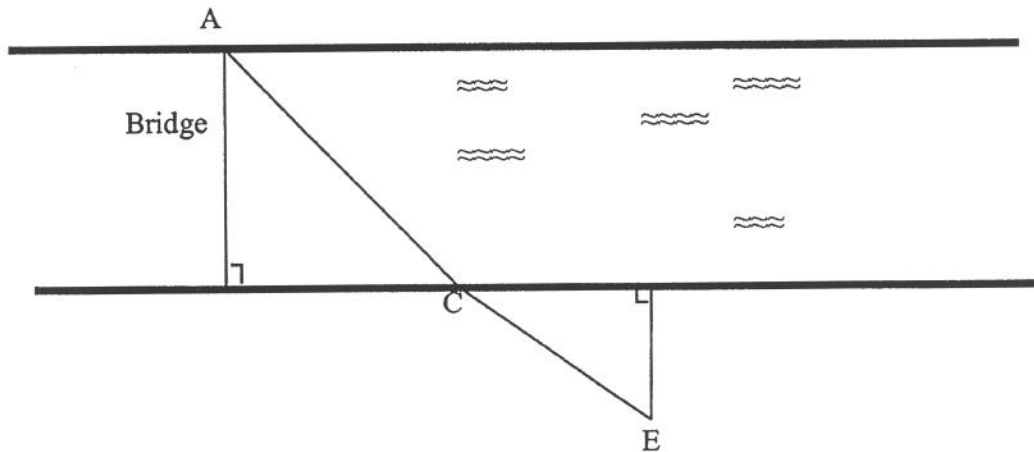


Building Bridges

An engineering firm wants to build a bridge across the river shown below. An engineer measures the following distances: $BC = 1200$ feet, $CD = 40$ feet, and $DE = 20$ feet.



1. Triangles ABC and EDC are similar. Explain how this is possible.
2. Given that railings cost \$4 per foot, determine the cost to put railings on both sides of the bridge.
3. A cable needs to be run as an extra support for the bridge. The cable will run from A to C . We will need an extra 2ft per side to accommodate wrapping around the pole. Calculate the amount of cable needed for the support. Round your answer to the nearest tenth.

Topic: Similarity
ORQ Similar Triangles

After section 8.3 (PH)
After section 8.5 (ML)

Building Bridges Rubric

Question 1:

1 point total for Angle Angle Similarity

Question 2:

3 points total

2 points for work

$$\frac{40}{1200} = \frac{1}{30}$$

$$\frac{1}{30} = \frac{20}{x} \Rightarrow x = 60$$

1 point for correct \$ amount

$$60 * 2 * 4 = \$480$$

Question 3:

2 points total

1 point for correct use of the Pythagorean theorem

$$\sqrt{(60^2 + 1200^2)} = 1200.5 \text{ feet}$$

1 point for adding 2 feet to each side

$$1200.5 + 4 = 1204.5 \text{ feet}$$

Scale

4 – 6 points

3 – 4-5 points

2 – 2-3 points

1 – 1 point