



Leannah and Steven are planning to install a rainwater harvesting system for their home. They are constructing a new 20-foot gutter to collect the rainwater from their roof. The gutter will be formed from a 10-inch wide flat strip of aluminum, 20-feet long, by bending up the sides at a 90-degree angle from the bottom to form a “U” shape that is 20 feet long.

1. Determine the dimensions of the sides and bottom that will maximize the volume of rainwater in the gutter.
2. Calculate the volume of water when the 20-foot gutter is completely full.
  - a. Provide your answer in cubic inches.
  - a. Provide your answer in gallons. Round to the nearest gallon.