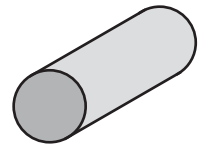


Assignment

Name _____ Date _____

Making Concrete Stronger Volume and Surface Area of a Cylinder

Read the problem scenario below. Use the scenario to answer Questions 1 through 3.

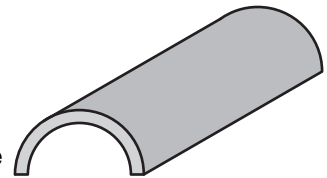


Quality control is very important when working with concrete. Samples are taken from each batch of concrete and tested. The samples are cylinders that are 18 inches high and 8 inches in diameter. Use 3.14 for π and round your answer to the nearest tenth if necessary.

1. Find the area of the base of the sample.
2. Find the volume of the sample.
3. Find the surface area of the sample.

Read the problem scenario below. Use the scenario to answer Questions 4 and 5.

A tunnel is to be built. The opening of the tunnel will be a semi circle with an opening 30 feet high and will be 1200 feet long. What is the approximate volume of dirt to be displaced in order to build the tunnel? Use 3.14 for π and round your answers to the nearest tenth if necessary.



4. Find the area of the base.
5. Find the volume of the dirt. Then find the approximate volume of dirt to be displaced to build the tunnel.

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6. Your municipality is replacing the storage tanks in the community. In which plan is the total capacity greater?

Plan 1: Install one cylindrical tank that is 150 feet tall and has a radius of 50 feet.

Plan 2: Install two cylindrical tanks that are 75 feet tall. One cylindrical tank has a radius of 30 feet and one tank has a radius of 25 feet.

Use 3.14 for π and round your answers to the nearest tenth if necessary. Use a complete sentence in your answer.