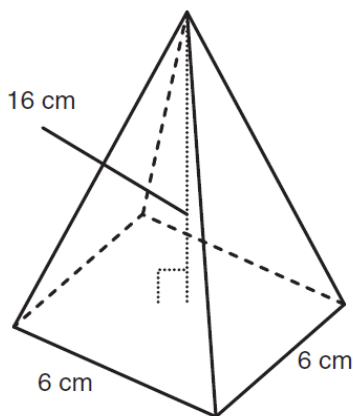


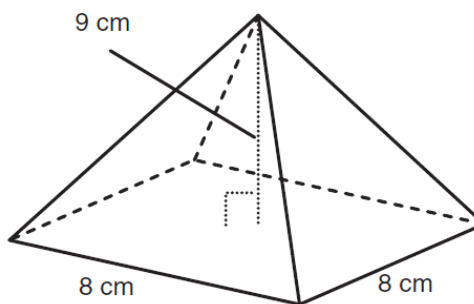
8.6.D1 – Applications With Volume

**SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.
ROUND TO THE NEAREST TENTH, UNLESS OTHERWISE STATED.**

- When you put a rock into a container of water, it raises the water level 3 centimeters. If the container is a rectangular prism whose base measures 15 centimeters by 15 centimeters, what is the volume of the rock?
- You drop a solid glass ball into a cylinder with a radius of 6 centimeters, raising the water level 1 centimeters. What is the volume of the glass ball?
- A fish tank 10 by 14 by 12 inches high is the home of a large goldfish named Columbia. She is taken out when her owner cleans the tank, and the water level in the table drops 1/4 inch. What is Columbia’s volume?
- How much does a solid block of aluminum weigh if its dimensions are 4 centimeters by 8 centimeters by 20 centimeters? (Refer to the table on page 18 in your notes.)
- A square-prism container with a base 5 centimeters. by 5 centimeters. is partially filled with water. You drop a clump of metal that weighs 525 grams into the container, and the water level rises 2 centimeters. What is the density of the metal? Assuming the metal is pure, what is the metal? (Refer to the table on page 18 in your notes.)
- The Luxor Hotel in Las Vegas is a replica of the Pyramid of Khafre at Giza, one of the Seven Wonders of the World. The Luxor’s base is a square with a side length of 646 feet, and it is 350 feet tall.
 - What is the volume of the Luxor Hotel? Approximate your answer to the nearest tenth.
 - The Pyramid of Khafre has a volume of 2,226,450 cubic meters. Its base is a square with a side of 215 meters. What is the height of the Pyramid of Khafre? Approximate your answer to the nearest tenth.
- A store sells square pyramid-shaped scented candles. The dimensions of two of the candles are shown. Both candles are made of wax. Which candle contains more wax? Explain your reasoning.

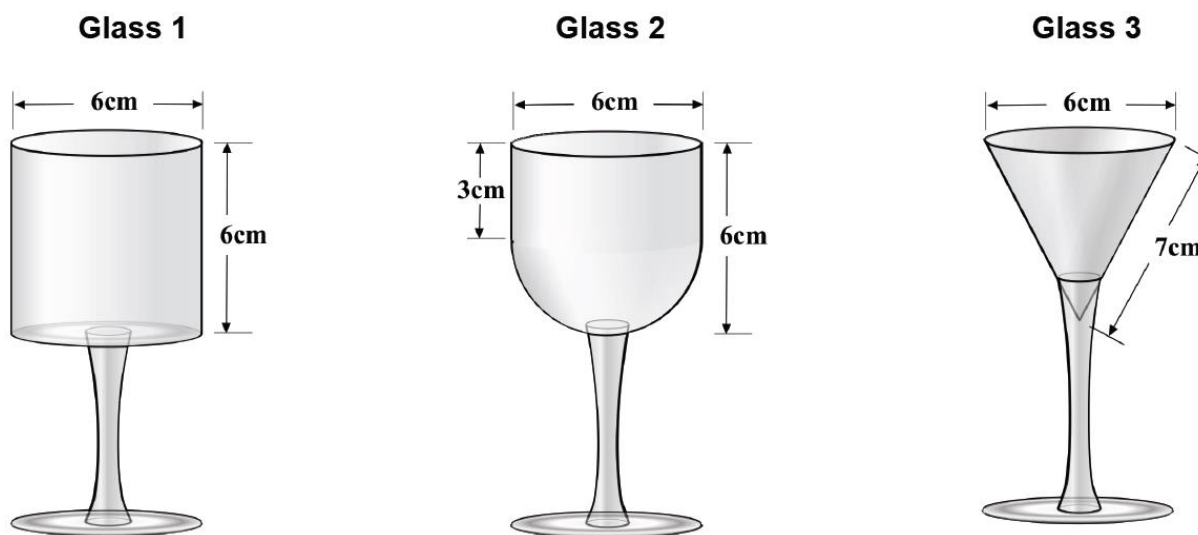


Candle A



Candle B

8. A traffic cone has a radius of 9 inches and a height of 30 inches. What is the volume of this traffic cone? Approximate your answer to the nearest tenth.
9. Your municipality is replacing the storage tanks in the community. Which plan provides the greater total capacity? Explain your reasoning.
- 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.
10. A funnel that is used to change the oil in a car is in the shape of a cone. The base of the funnel has a circumference of 60 centimeters. The height of the funnel is 25 centimeters. How much oil will this funnel hold? Approximate your answer to the nearest tenth.
11. Today's deal at the ice cream shop is a mini cone with one scoop of ice cream.
- A mini ice cream cone has a diameter of 3.5 centimeters and a height of 6 centimeters. How much ice cream fits in the cone? Approximate your answer to the nearest tenth.
 - One scoop of ice cream has the same diameter as the cone, 3.5 centimeters. What's the volume of 1 scoop of ice cream? Approximate your answer to the nearest tenth.
12. The picture below shows three glasses. The measurements are all in centimeters. The bowl of Glass 2 has a cylindrical top and a hemispherical base. The bowl of Glass 3 goes down into the stem.



- Predict which glass will hold the greatest volume of liquid.
- Calculate the volume of liquid that would fill the bowl of each glass. Approximate your answers to the nearest tenth.