

### Volume of a Cylinder

1. The diameter of a cylinder is 15 m and its height is 5 m.  
Calculate the volume of the cylinder to the nearest tenth. Use  $\pi = 3.14$ .

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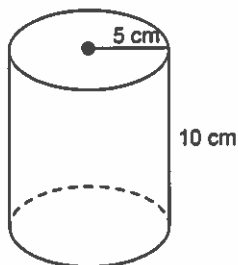
2. There are 26 concrete cylindrical pillars in a stadium.  
Each column has diameter 3.4 m and height 12 m.  
Calculate the total volume of concrete in the pillars, to the nearest cubic metre. Use  $\pi = 3.14$ .

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3. Which right cylinder has the greater volume?  
Cylinder A: radius 4 cm, height 16 cm  
Cylinder B: radius 16 cm, height 4 cm  
Can you find the answer without using a calculator?

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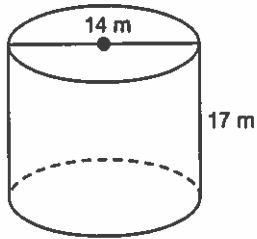
4. Find the volume of this cylinder. Round your answer to the nearest tenth.



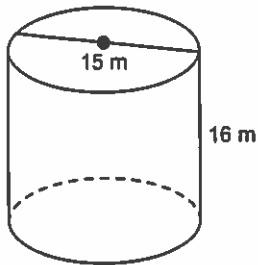
Name: \_\_\_\_\_

ID: A

5. Find the volume of this cylinder. Round your answer to the nearest tenth.



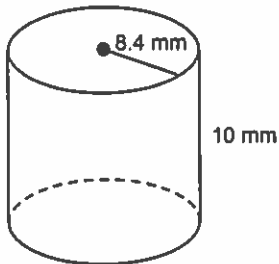
6. Find the volume of this cylinder. Round your answer to the nearest cubic unit.



7. Find the volume of a cylinder with diameter 8 cm and height 4.1 cm.  
Round your answer to the nearest cubic unit.



8. Find the volume of this cylinder. Round your answer to the nearest cubic unit.

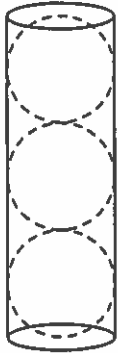


9. The height of a cylindrical oil storage tank is 6 m and it has diameter 22 m.  
If the tank is full, how much oil does it contain? Round your answer to the nearest kL. (1 kL = 1 m<sup>3</sup>)

Name: \_\_\_\_\_

ID: A

10. This diagram shows 3 balls closed packed in a cylindrical container.  
The diameter of each ball is 13 cm. What is the volume of the container?  
Explain your answer.



## Volume of a Cylinder Answer Section

### SHORT ANSWER

1. ANS:  
The volume of the cylinder is about  $883.1 \text{ cm}^3$ .  
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding
2. ANS:  
The volume of concrete in the pillars is about  $2831 \text{ m}^3$ .  
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)  
KEY: Conceptual Understanding | Problem-solving Skills
3. ANS:  
Cylinder B has the greater volume since the increase in radius is squared.  
  
PTS: 1                    DIF: Difficult        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)  
KEY: Conceptual Understanding | Problem-solving Skills
4. ANS:  
 $785.4 \text{ cm}^3$   
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding
5. ANS:  
 $2616.9 \text{ m}^3$   
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding
6. ANS:  
 $2827 \text{ m}^3$   
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding
7. ANS:  
 $206 \text{ cm}^3$   
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding
8. ANS:  
 $2217 \text{ mm}^3$   
  
PTS: 1                    DIF: Moderate        REF: 4.8 Volume of a Right Cylinder  
LOC: 8.SS4                TOP: Shape and Space (Measurement)    KEY: Conceptual Understanding

9. ANS:  
2281 kL

PTS: 1            DIF: Moderate      REF: 4.8 Volume of a Right Cylinder  
 LOC: 8.SS4        TOP: Shape and Space (Measurement)  
 KEY: Conceptual Understanding | Problem-solving Skills

### PROBLEM

10. ANS:  
 Explanations may vary. Sample:  
 The diameter of the cylindrical container is the same as the diameter of each ball.  
 Diameter of container:  $d = 13$   
 Radius of container:  $r = \frac{d}{2} = \frac{13}{2} = 6.5$   
 Height of container:  $h = 3d = 3 \times 13 = 39$   
 Volume of container:  $V = \text{base area} \times \text{height}$   
 $= \pi r^2 \times h$   
 $= \pi \times (6.5)^2 \times 39$   
 $\approx 5177$   
 The volume of the container is about 5177 cm<sup>3</sup>.

PTS: 1            DIF: Difficult      REF: 4.8 Volume of a Right Cylinder  
 LOC: 8.SS4        TOP: Shape and Space (Measurement)  
 KEY: Communication | Problem-solving Skills