

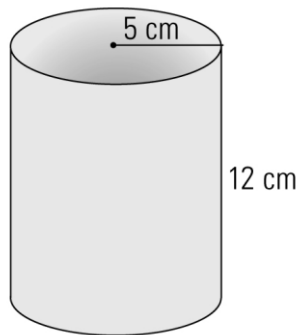
SAMPLE CHAPTER TEST

Name: _____ Date: _____

Part A: Multiple Choice

Choose the best response to each of the following questions.

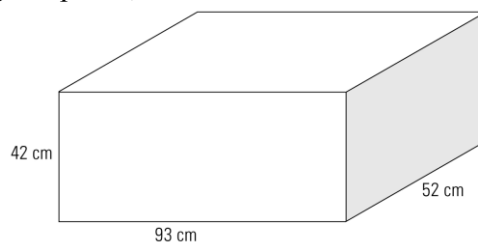
1. Ray runs a stationery store. He sells a canister to hold pencils and pens, as shown below.



He protects each canister with plastic wrap. What is the minimum amount of plastic wrap Ray will need to cover the canister?

- a) 188.50 cm^2
- b) 455.53 cm^2
- c) 534.07 cm^2
- d) 942.48 cm^2

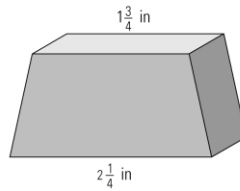
2. Mick is a carpenter and is building a brace for a wall. One of the pieces he needs to create is in the shape of a rectangular prism, as shown below.



How much wood will Mick need to create the piece, in cubic metres?

- a) 0.02 m^3
- b) 0.2 m^3
- c) $21\,852 \text{ m}^3$
- d) $203\,112 \text{ m}^3$

3. Lira runs a jewellery store. She has created a small jewellery box in the shape of an oblique trapezoidal prism, as shown below.



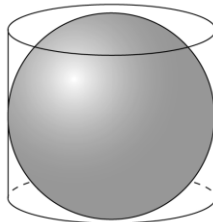
Lira decides to create another box that can hold eight times the amount of the original box. Which of the following strategies can Lira use to create the new box?

- a) Multiply each of the original side lengths by 2.
- b) Multiply each of the original side lengths by 8.
- c) Square the value of the original side lengths.
- d) Cube the value of the original side lengths.

4. Sayeli is a chef at her family's restaurant. Many of her dishes use rice, so she buys a large box of rice in the shape of a cube with a volume of $15\,625\text{ cm}^3$. What is the side length of the box?

- a) 25 cm
- b) 125 cm
- c) 1953.1 cm
- d) 5208.3 cm

5. Nick's Sporting Goods sells basketballs in cylindrical boxes. Each ball is tightly packed into each box.



How much space inside the cylindrical box is taken up by the sphere?

- a) $\frac{1}{3}$
- b) $\frac{1}{2}$
- c) $\frac{2}{3}$
- d) $\frac{3}{4}$

Part B: Short Answer

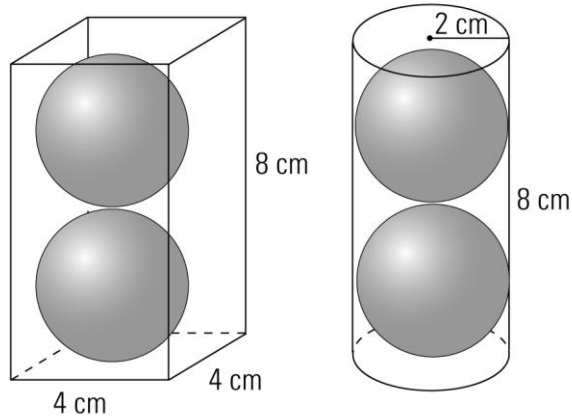
6. Sylvio has installed a cylindrical water tank in an apartment building with a radius of 15 feet and a height of 30 feet. How much water will the tank hold?

7. Angelique is a painter. She has been hired to paint a large conference room. The room is in the shape of a rectangular prism with a length of 25 feet, a width of 32 feet, and a height of 10 feet. How much paint will she need to paint the four walls of the room, in square feet?

8. Henry is shipping small cubic boxes with a side length of 5 inches. He needs to ship 64 boxes to one of his customers. What shape of box would require the least material to make? What would be the dimensions of the box?

Part C: Extended Answer

9. Luke is designing a package to hold tennis balls. He creates two packages, one in the shape of a right rectangular prism, and the other in the shape of a cylinder. Each package can hold two balls tightly.



a) Which of the packages will require less material to create? Explain your answer.

b) If Luke creates 10 packages, how much less material will be required to create the package you identified in a)?

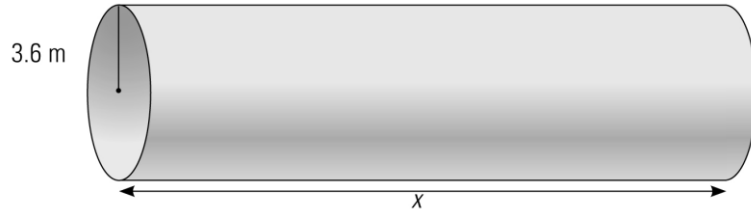
10. Jorge is an artist. He has been contracted to create a large work of art for the park grounds in his town. He has proposed two different pieces to the town:

- A rectangular prism with a height of 12 metres, a width of 3 metres, and a length of 4 metres.
- A sphere with a diameter of 6 metres.

a) If he creates a hollow prism or a sphere, which shape will require less material to create? Explain your answer.

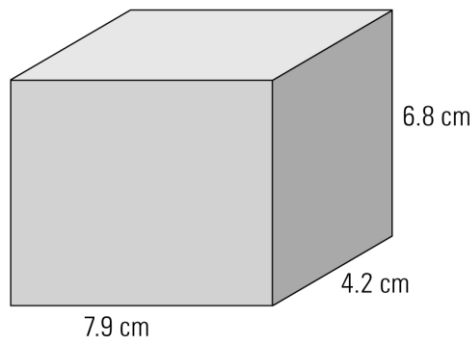
b) If he creates a solid prism or a sphere, which shape will require less material to fill? Explain your answer.

11. Lamar is a millwright. He is installing a large pipe in the ground with a volume of 879.44 m^3 .



The pipe has a radius of 3.6 metres. What is the length of the pipe, x ?

12. Darrin is a candle maker. For his next candle, he buys a rectangular brick of wax, as shown below, and melts it. He shapes the melted wax into a spherical candle.



What is the approximate radius of the largest candle Darrin can make?

13. Yolanda is a city planner. She has planned to create a rectangular landfill with a depth of 85 ft and a base with dimensions of 700 ft by 200 ft.

a) How many cubic feet of garbage will the landfill be able to hold?

b) When the landfill is created, approximately how many cubic yards of dirt will the city need to haul away? (1 foot = $\frac{1}{3}$ yard)