

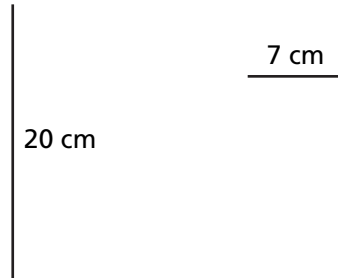
3ACE Exercise 22

Investigation 3

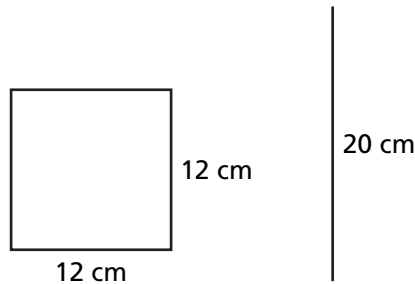
Filling and Wrapping

22. A popcorn vendor needs to order popcorn boxes. The vendor must decide between a cylindrical box and a rectangular box.

- The cylindrical box has a **height of 20 centimeters** and a **radius of 7 centimeters**.



- The rectangular box has a **height of 20 centimeters** and a **square base with 12-centimeter sides**.



- The **price** of each box is based on the amount of material needed to make the box.
- The vendor plans to charge \$2.75 for popcorn, regardless of the shape of the box.

a. Make a sketch of each box. **Label the dimensions.**

cylindrical box

rectangular box

3ACE Exercise 22 *(continued)*

Investigation 3

Filling and Wrapping

b. Find the volume and surface area of each box.

Volume of cylindrical box:

Surface area of cylindrical box:

Volume of rectangular box:

Surface area of rectangular box:

c. Which box would you choose?

Give the reasons for your choice.

Reason 1:

Reason 2:

Other reasons?

What additional information might help you make a better decision?