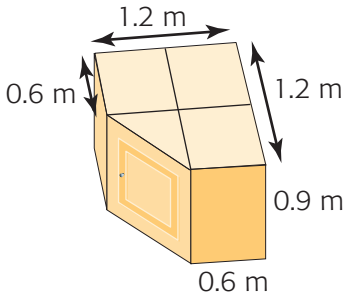
Mid-Chapter Review

FREQUENTLY ASKED Questions

Q: How can you decompose a composite object?

A: Examine the object for component rectangular prisms, triangular prisms, and cylinders. There may be more than one way to do this. For example, this kitchen cabinet can be decomposed into a triangular prism, one square prism, and one rectangular prism. Or, it can be made of a triangular prism and three square prisms.

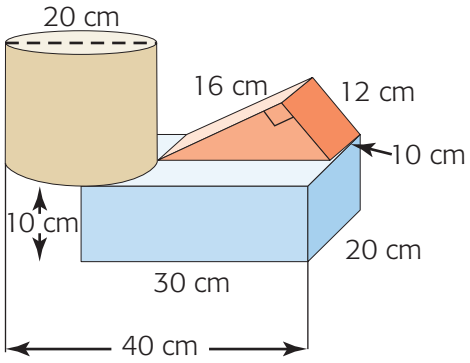


Study Aid

- See Lesson 4.2, Examples 1 and 2.
- Try Mid-Chapter Review questions 1 and 2.

Q: How can you determine the area of overlap for a composite object?

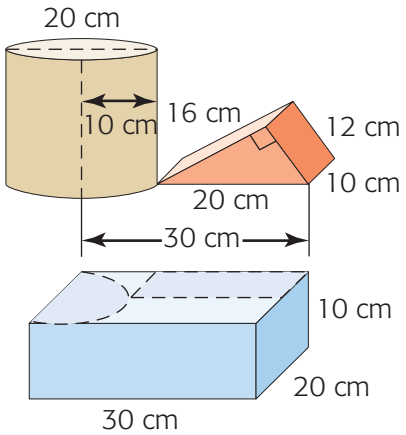
A: Separate the object into component parts and calculate the areas of the faces they share. For example, the areas of overlap for this composite object are a semicircle and a rectangle. The rectangle is 20 cm long ($\sqrt{12^2 + 16^2} = 20$).



Total overlap area
$= \text{area of semicircle} + \text{area of rectangle}$
$= \pi r^2 \div 2 + (lw)$
$\doteq 3.14 \times (10)^2 \div 2 + (20 \times 10)$
$\doteq 157 + 200$
$\doteq 357 \text{ cm}^2$

Study Aid

- See Lesson 4.3, Examples 1, 2, 3, 4, and 5.
- Try Mid-Chapter Review questions 3, 4, and 5.



Practice

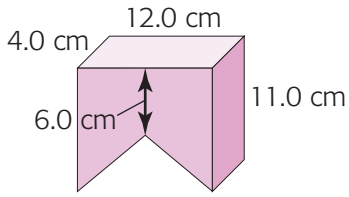
Lesson 4.2

1. Which components can you identify in the International Space Station?

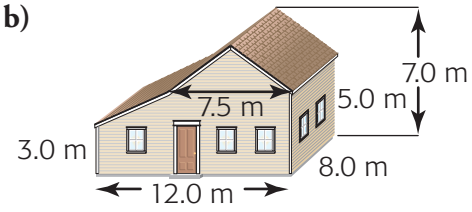
- cylinder
- rectangular prism
- triangular prism

2. Sketch one way to decompose each object. Include dimensions of each part.

a)



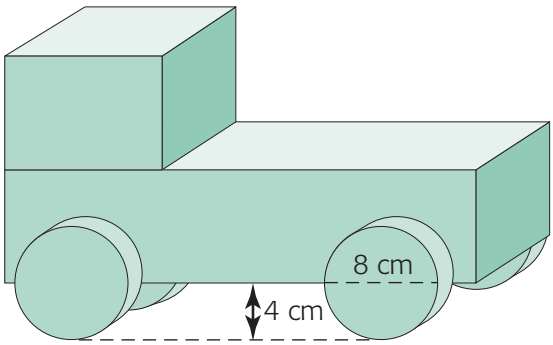
b)



Lesson 4.3

3. Determine the area of overlap for each object in question 2.

4. A child's toy has four wheels, as shown. Determine the area of overlap between the wheels and the body of the toy.



5. A child made this toy from building blocks. Determine the area of overlap.