

indicate which faces are congruent.

Show your work.

a. 800 in²

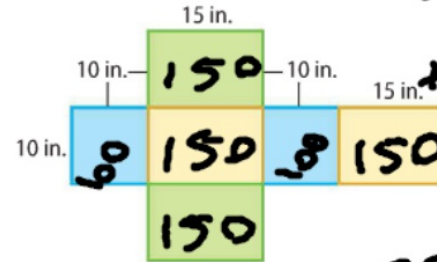


$48 + 48 + 56 + 56 + 42 + 42 = 292$ Add the area of each face.

So, the surface area is 292 square meters.

Got It? Do this problem to find out.

- a. Find the surface area of the rectangular prism.



$2(150)$
 $2(150)$
 $+ 2(100)$
 $= 300 + 300 + 200$
 $= 800$



$$\ell = 7, w = 4.8, h = 6$$

$$\text{front and back: } 2\ell h = 2(\boxed{7})(\boxed{6}) \text{ or } \boxed{84}$$

$$\text{top and bottom: } 2\ell w = 2(\boxed{7})(\boxed{4.8}) \text{ or } \boxed{67.2}$$

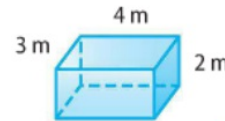
$$\text{two sides: } 2hw = 2(\boxed{6})(\boxed{4.8}) \text{ or } \boxed{57.6}$$

Add to find the surface area.

$$\boxed{84} + \boxed{67.2} + \boxed{57.6} \text{ or } \boxed{208.8} \text{ square centimeters}$$

Got It? Do this problem to find out.

b. Find the surface area of the rectangular prism.



$$2 \times 3 = 6$$

$$3 \times 4 = 12$$

$$4 \times 2 = 8$$

$$\begin{array}{r} 6 \\ 12 \\ + 8 \\ \hline 26 \end{array}$$

Show your work.

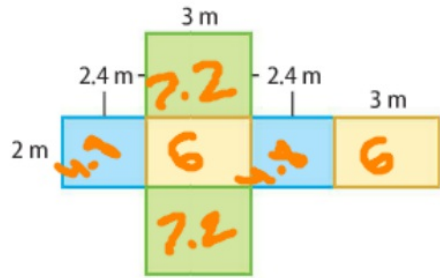
$$\text{b. } \underline{52 \text{ m}^2}$$





Find the surface area of each rectangular prism. (Examples 1-3)

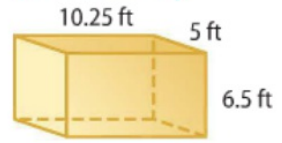
1. 36 m²



Show your work.

4. Tomás keeps his diecast car in a glass display case as shown. What is the surface

2. 300.75 ft²



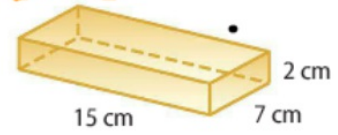
$$5 \times 6.5 = 32.5$$

$$10.25 \times 5 = 51.25$$

$$10.25 \times 6.5 = 66.625$$

$$2 \times 150.375 = 300.75$$

3. 298 cm²



$$7 \times 15 = 105 \times 2 = 210$$

$$15 \times 2 = 30 \times 2 = 60$$

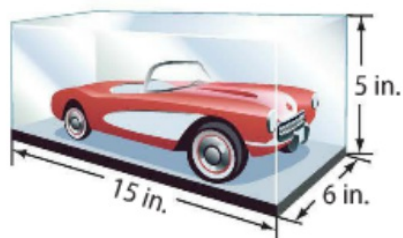
$$2 \times 7 = 14 \times 2 = 28$$

$$210 + 60 + 28 = 298$$




Rate Yourself!
Are you ready to move on?

4. Tomás keeps his diecast car in a glass display case as shown. What is the surface area of the glass, including the bottom? (Example 4)



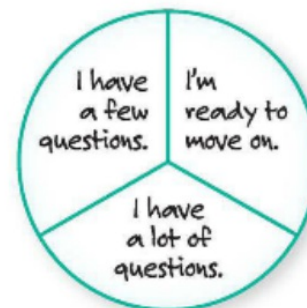
390 in²

5.  **Building on the Essential Question** What is the relationship between area and surface area?

Sample answer: Surface area is calculated for a three-dimensional figure. It is the sum of the areas of the surfaces that make up the three-dimensional figure.

Rate Yourself!

Are you ready to move on?
Shade the section that applies.



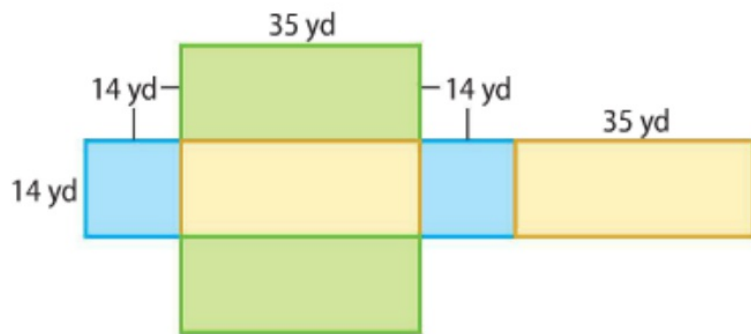
For more help, go online to access a Personal Tutor.



FOLDABLES Time to update your Foldable!

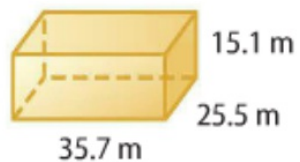
Find the surface area of each rectangular prism. (Examples 1–3)

1. 2,352 yd²

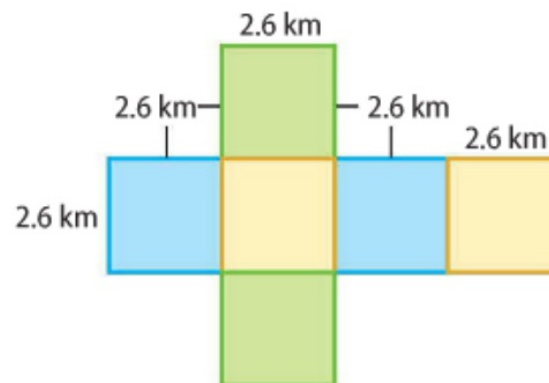


Show your work.

3. 3,668.94 m²



2. 40.56 km²

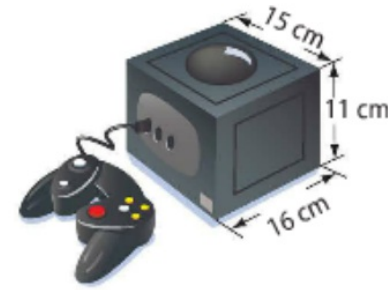


4. 256 in²



5. **STEM** A game box for video games is shaped like a rectangular prism. What is the surface area of the game box? (Example 4)

1,162 cm²

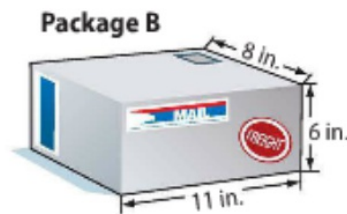


6. **CCSS** **Justify Conclusions** Martina estimates that the surface area of a rectangular prism with a length of 13.2 feet, a width of 6 feet, and a height of 8 feet is about 460 square feet. Is her estimate reasonable? Explain your reasoning.

Yes; the approximate surface area of the rectangular prism is

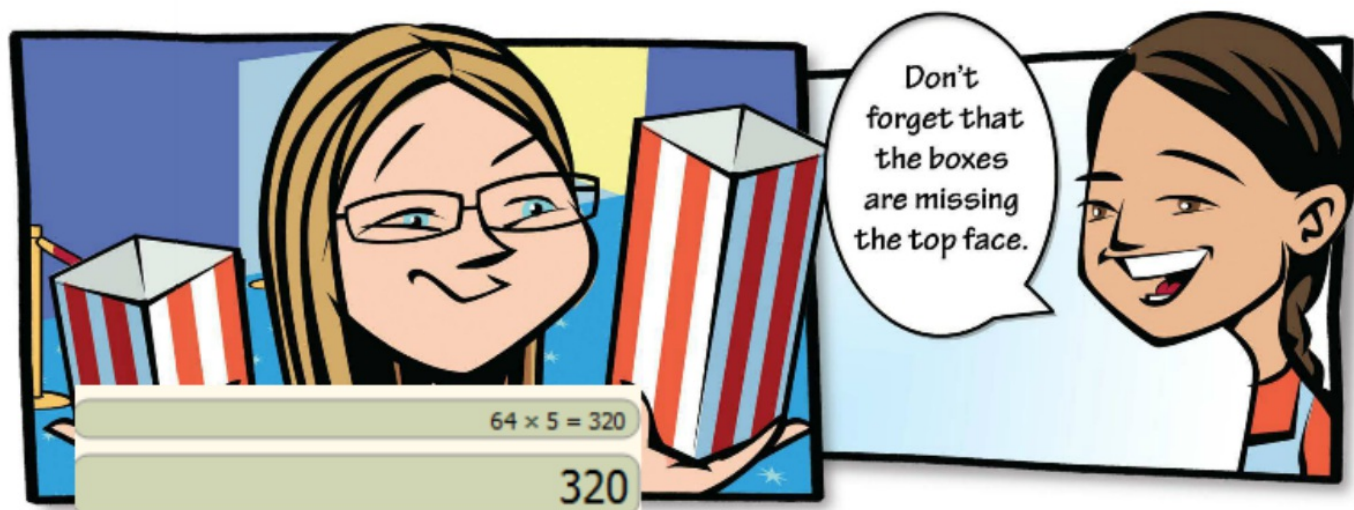
$(2 \times 13 \times 6) + (2 \times 13 \times 8) + (2 \times 6 \times 8)$ or 460 ft².

7. **CCSS** **Justify Conclusions** Find the surface area of each shipping package. Which package has the greater surface area? Does the same package have a greater volume? Explain your reasoning to a classmate.



Package A: 492 in²; Package B: 404 in²; Package A has a greater surface area. No, the volume of Package B is greater.

8. **CCSS Model with Mathematics** Refer to the graphic novel frame below for Exercises a–c.



- a. The box on the left is 8 inches long, 8 inches wide, and 8 inches tall. What is the surface area of the box? 320 in²
- b. The box on the right is 8 inches long, 6 inches wide, and 10 inches tall. What is the surface area of the box? 328 in²
- c. How much more surface area does the larger container have? 8 in²



$120 + 160 + 48 = 328$

328



H.O.T. Problems Higher Order Thinking



Persevere with Problems All of the triangular faces of the figure are congruent.

9. What is the area of one of the triangular faces? the square face?

48 in^2 ; 144 in^2

10. Use what you know about finding the surface area of a rectangular prism to find the surface area of the square pyramid.

336 in^2



11. **Model with Mathematics** Sketch two prisms such that one has a greater volume and the other has a greater surface area. Include real-world units. **See students' work.**

