

$$2 \left[ \frac{1}{2} (5.2) (6) \right]$$

$$3 [(6) (7)]$$

area of each triangular base:  $\frac{1}{2}(1)(0.9) = 0.45$

area of each rectangular face:  $1(2) = 2$

Add to find the surface area.

$$0.45 + 0.45 + 2 + 2 + 2 = 6.9 \text{ square centimeters}$$

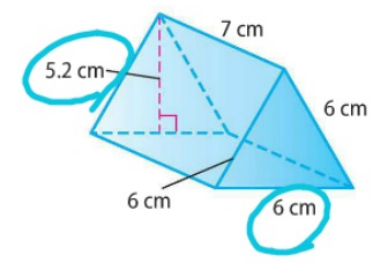
Show your work.

**Got It?** Do this problem to find out.

a. 157.2 cm<sup>2</sup>

a. Find the surface area of the triangular prism.

$$\begin{array}{r}
 1231.2 \\
 + \\
 \hline
 157.2
 \end{array}$$



Calculator

6 × 7 × 3 = 126

126

←	CE	C			
MC	7	8	9	÷	Sqrt
MR	4	5	6	×	x <sup>2</sup>
MS	1	2	3	-	1/x
M+	0	.	±	+	=

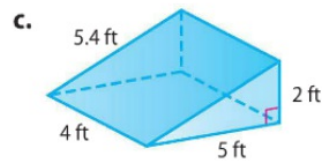
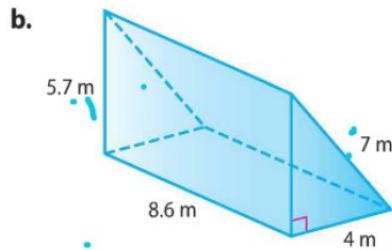


Add to find the surface area.

$$60 + 60 + 300 + 340 + 160 = 920 \text{ square meters}$$

**Got It?** Do this problem to find out.

Find the surface area of each triangular prism.



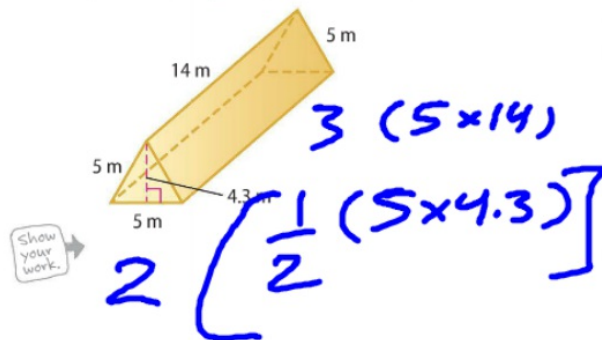
$$\begin{aligned} (8.6)(7) &= 60.2 \\ (8.6)(4) &= 34.4 \\ (8.6)(5.7) &= 49.02 \\ 2 \left[ \frac{1}{2} (4 \times 5.7) \right] &= 22.8 \end{aligned}$$

Show your work.

b.  $166.42 \text{ m}^2$

c.  $59.6 \text{ ft}^2$

1. Find the surface area of the triangular prism. (Examples 1–2) 231.5 m<sup>2</sup>



2. A skateboarding ramp is in the shape of a triangular prism. If the entire ramp is to be painted, what is the surface area to be

painted? (Example 3) 4,704 in<sup>2</sup>



Handwritten blue work for problem 2:

$$2 \left[ \frac{1}{2} (14 \times 48) \right] + 3 (14 \times 36)$$

3. **Building on the Essential Question** How is the area of a rectangle related to the surface area of a triangular prism? Sample answer: A triangular prism has three rectangular faces. You can use the area of a rectangle to find the area of the three rectangular faces of a triangular prism.



FOLDABLES

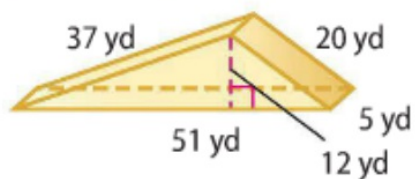
Time to update your Foldable!

# Independent Practice

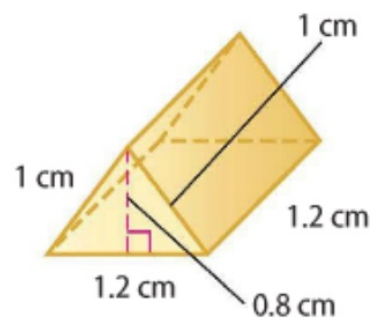
Go online for S

Find the surface area of each triangular prism. (Examples 1–2)

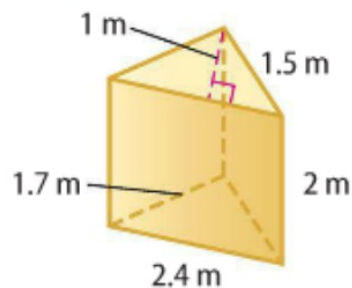
1. 1,152 yd<sup>2</sup>



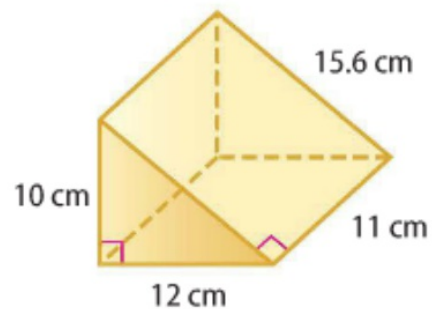
2. 4.8 cm<sup>2</sup>



3. 13.6 m<sup>2</sup>



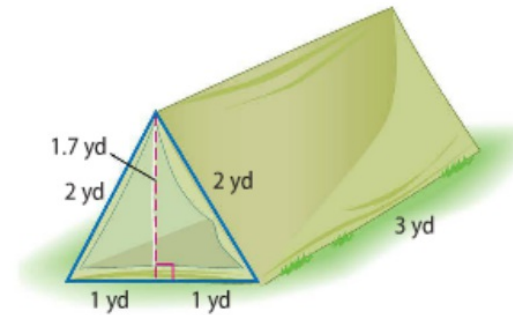
4. 533.6 cm<sup>2</sup>



- 5 A tent is in the shape of a triangular prism. About how much canvas, including the floor, is used to make the tent? (Example 3)

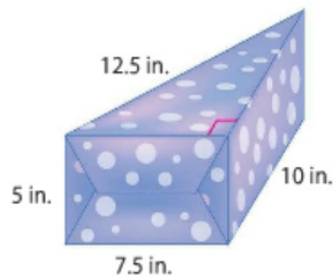
**about 21.4 yd<sup>2</sup>**

Show your work.



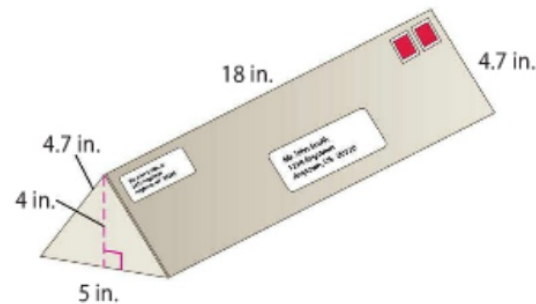
6. A decorative gift box is in the shape of a triangular prism as shown. What is the surface area of the box? (Example 3)

**225 in<sup>2</sup>**



7. A mailer for posters is a triangular prism as shown. Find the surface area of the mailer. (Example 3)

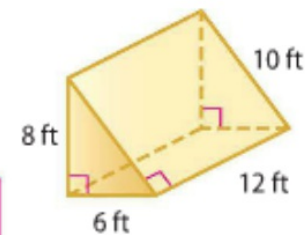
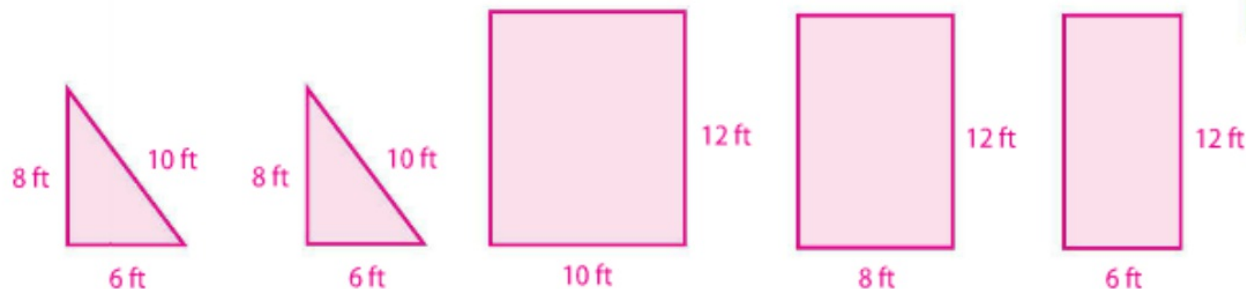
**279.2 in<sup>2</sup>**



8. **CCSS Multiple Representations** The figure shows the dimensions of a triangular prism.

a. **Models** Draw a model of the faces and bases of the triangular prism.

show your work.



b. **Words** Describe the triangular prism. Sample answer: The prism has right triangle bases each with an area of  $24 \text{ ft}^2$ . The rectangular faces have an area of  $72 \text{ ft}^2$ ,  $120 \text{ ft}^2$ , and  $96 \text{ ft}^2$ . The total surface area is  $336 \text{ ft}^2$ .

c. **Numbers** Find the surface area of the triangular prism using addition.  
 $24 + 24 + 72 + 120 + 96 = 336$ ;  $336 \text{ ft}^2$

9. The surface area of a right triangular prism is 228 square inches. The base is a right triangle with a base height of 6 inches and a base length of 8 inches. The length of the third side of the base is 10 inches. Find the height of the prism. 7.5 in.



**HOT Problems**



## H.O.T. Problems Higher Order Thinking

10. **Reason Abstractly** Describe the dimensions of a triangular prism that has a surface area between 550 square inches and 700 square inches.

**Sample answer: triangular base that measures 9 inches, 12 inches, and 15 inches, and a height of 14 inches**

11. **Persevere with Problems** Sketch and label two triangular prisms such that one has a greater volume and the other has a greater surface area.

**See students' work. Sample answer: Prism A with bases that are right triangles that measure 3 by 4 by 5 and with a height of 1. Prism B with bases that are right triangles that measure 1 by 1 by 1.4 and with a height of 10. Prism A has a greater volume while Prism B has a greater surface area.**

12. **Justify Conclusions** Gary is painting a decorative box with the dimensions shown at the right. A can of paint covers about 25 square feet. Does he have enough to paint the rectangular faces of his box with three coats of paint? Justify your answer.

**yes; Sample answer: The area of the rectangular faces is about  $1.7 \text{ ft}^2$ . Three coats would need to cover  $5.1 \text{ ft}^2$ , which is much less than the  $25 \text{ ft}^2$ .**

