March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Warm Up

1. $\frac{11}{6} - \frac{13}{15}$

2. $\frac{7}{5} - \frac{4}{3}$

3. $\frac{13}{7} - \frac{25}{14}$

5. $\frac{7}{4} - \frac{7}{9}$

6. $\frac{25}{16} - \frac{4}{3}$

7. $\frac{23}{20} - \frac{11}{12}$

9. $\frac{16}{9} - \frac{4}{5}$

10. $\frac{19}{20} - \frac{1}{2}$

11. $\frac{4}{3} - \frac{4}{5}$

March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Warm Up Answers

1. $\frac{11}{6} - \frac{13}{15}$
$= \frac{29}{30}$

2. $\frac{7}{5} - \frac{4}{3}$
$= \frac{1}{15}$

3. $\frac{13}{7} - \frac{25}{14}$
$= \frac{1}{14}$

5. $\frac{7}{4} - \frac{7}{9}$
$= \frac{35}{36}$

6. $\frac{25}{16} - \frac{4}{3}$
$= \frac{11}{48}$

7. $\frac{23}{20} - \frac{11}{12}$
$= \frac{7}{30}$

9. $\frac{16}{9} - \frac{4}{5}$
$= \frac{44}{45}$

10. $\frac{19}{20} - \frac{1}{2}$
$= \frac{9}{20}$

11. $\frac{4}{3} - \frac{4}{5}$
$= \frac{8}{15}$

March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Lesson 8.1 & 8.2

March 9, 2016

Essential Question:

How can you find the area of the entire surface of a prism?

Lesson 8.1 & 8.2 March 9, 2016

Lesson Objective:

Students will be able to:

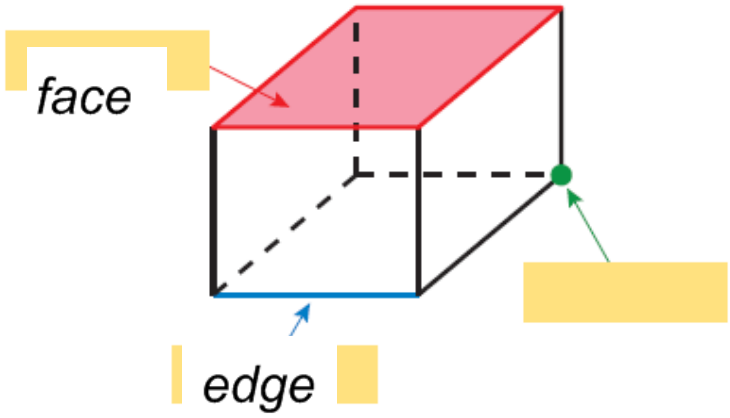
use a net to find the surface area of a prism.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to use a net to find the surface area of a prism.
3	I can use a net to find the surface area of a prism.
2	I recognize, but still need help to use a net to find the surface area of a prism.
1	I do not know how to use a net to find the surface area of a prism.

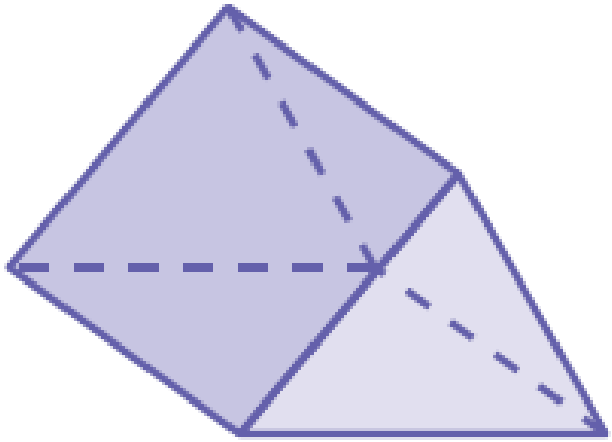
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.



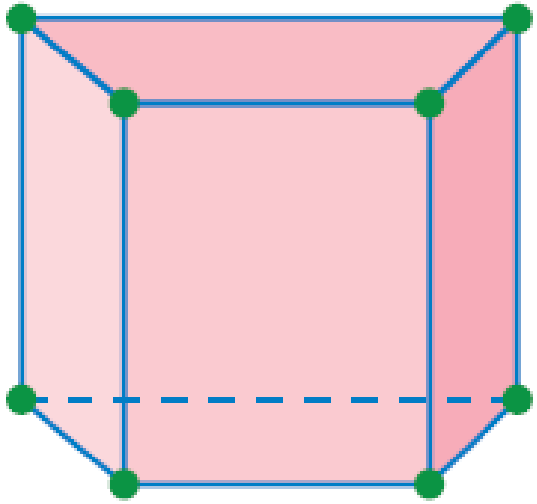
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.



March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.



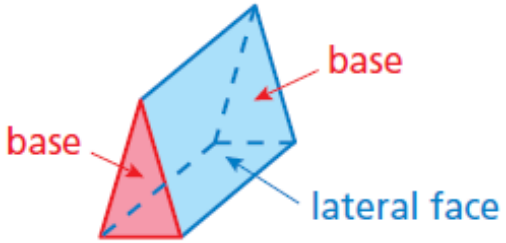
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Key Ideas

Prisms

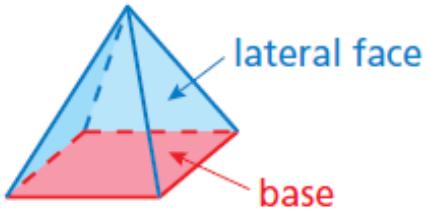
A **prism** is a polyhedron that has two parallel, identical *bases*. The *lateral faces* are parallelograms.



Triangular Prism

Pyramids

A **pyramid** is a polyhedron that has one base. The lateral faces are triangles.

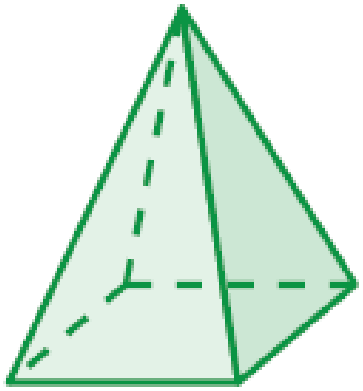


Rectangular Pyramid

The shape of the base tells the name of the prism or the pyramid.

March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.



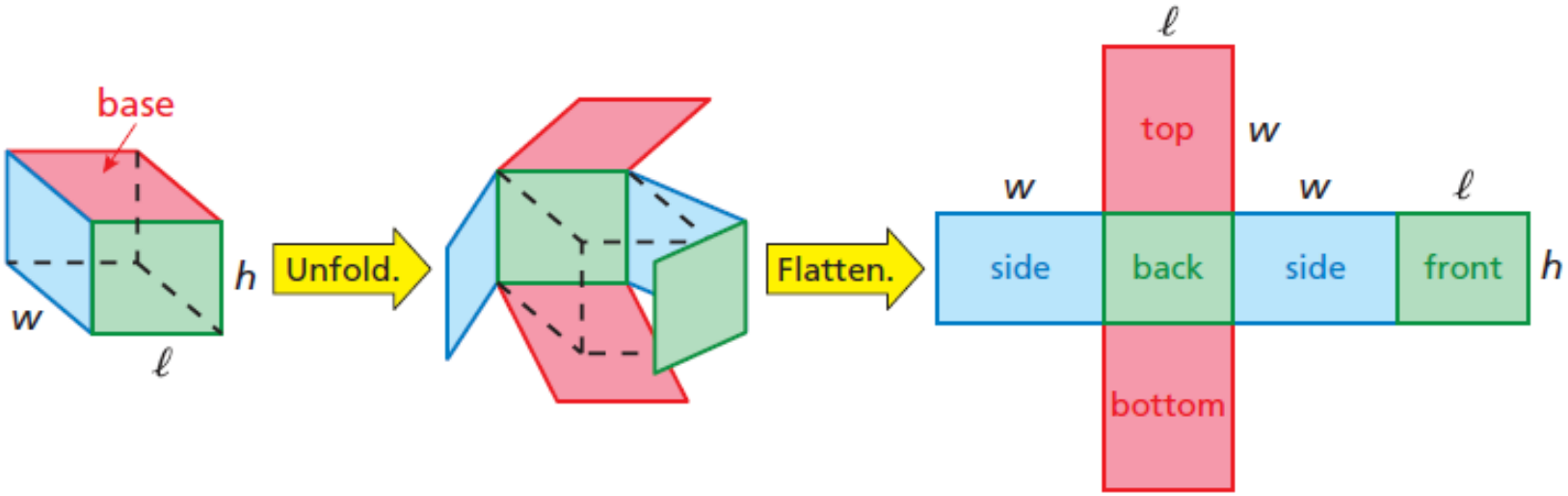
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Key Idea

Net of a Rectangular Prism

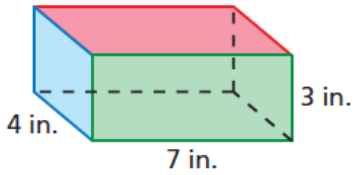
A *rectangular prism* is a prism with rectangular bases.



March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

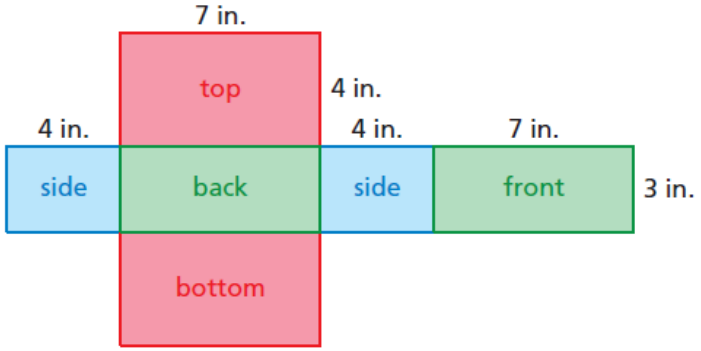
EXAMPLE 1 Finding the Surface Area of a Rectangular Prism



Find the surface area of the rectangular prism.

Use a net to find the area of each face.

Top: $7 \cdot 4 = 28$
Bottom: $7 \cdot 4 = 28$
Front: $7 \cdot 3 = 21$
Back: $7 \cdot 3 = 21$
Side: $4 \cdot 3 = 12$
Side: $4 \cdot 3 = 12$



Find the sum of the areas of the faces.

$$\begin{aligned} \text{Surface Area} &= \text{Area of top} + \text{Area of bottom} + \text{Area of front} + \text{Area of back} + \text{Area of a side} + \text{Area of a side} \\ S &= 28 + 28 + 21 + 21 + 12 + 12 \\ &= 122 \end{aligned}$$

∴ So, the surface area is 122 square inches.

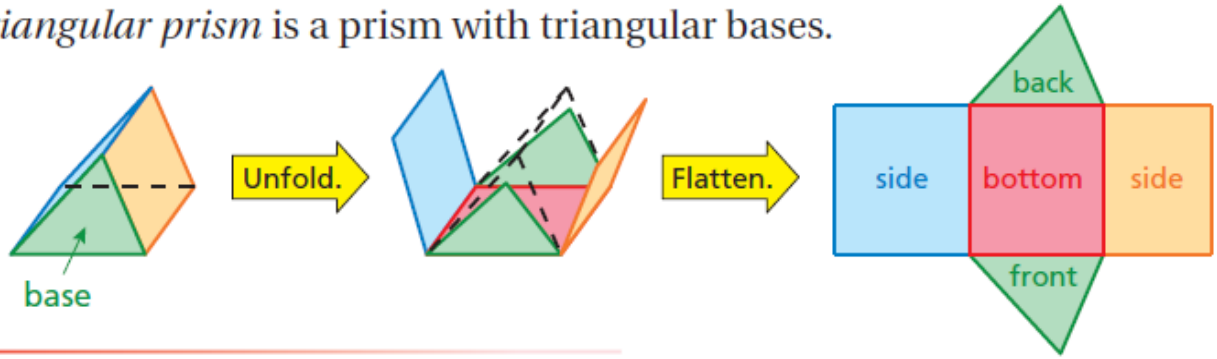
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Key Idea

Net of a Triangular Prism

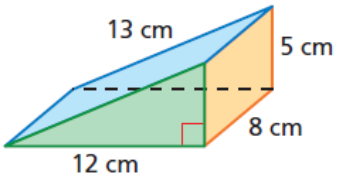
A *triangular prism* is a prism with triangular bases.



March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

EXAMPLE 2 Finding the Surface Area of a Triangular Prism



Find the surface area of the triangular prism.

Use a net to find the area of each face.

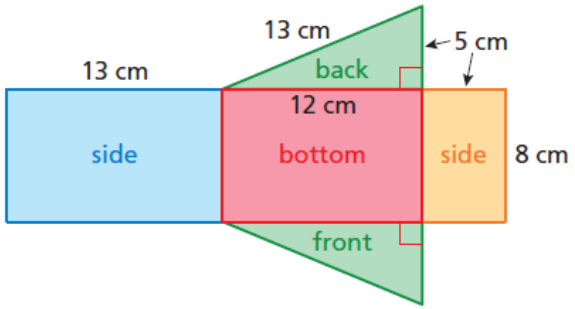
Bottom: $12 \cdot 8 = 96$

Front: $\frac{1}{2} \cdot 12 \cdot 5 = 30$

Back: $\frac{1}{2} \cdot 12 \cdot 5 = 30$

Side: $13 \cdot 8 = 104$

Side: $8 \cdot 5 = 40$



Find the sum of the areas of the faces.

$$\begin{array}{ccccccccccc} \text{Surface Area} & = & \text{Area of bottom} & + & \text{Area of front} & + & \text{Area of back} & + & \text{Area of a side} & + & \text{Area of a side} \\ S & = & 96 & + & 30 & + & 30 & + & 104 & + & 40 \end{array} = 300$$

∴ So, the surface area is 300 square centimeters.

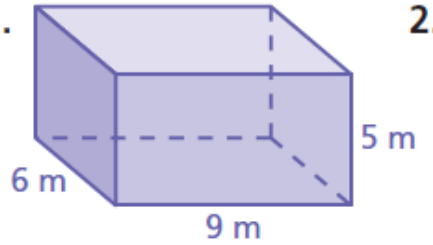
March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

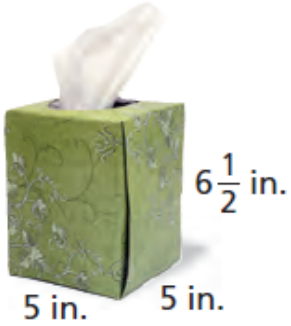
OYO!

Find the surface area of the rectangular prism.

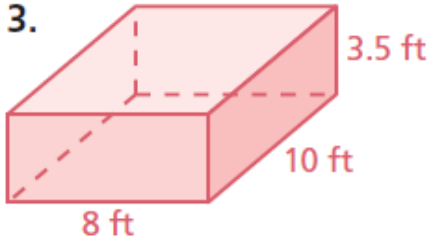
1.



2.

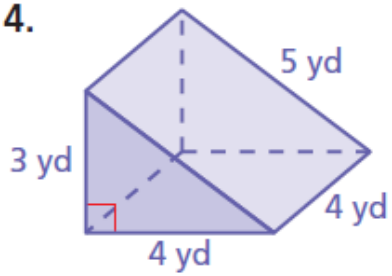


3.

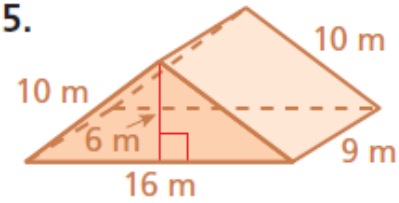


Find the surface area of the triangular prism.

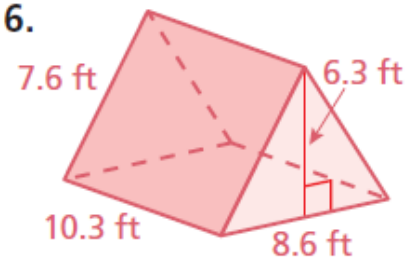
4.



5.



6.



March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Assignment

Complete problems:

6, 8, 10, 12, 14, 16

on pages 364 - 365 in your Big Ideas Text Book.

March 9, 2016 Lesson 8.1 & 8.2

Learning Objective: Students will be able to use a net to find the surface area of a prism.

Assignment Answers

6. $130\ \text{ft}^2$

8. $76\ \text{yd}^2$

10. $740\ \text{m}^2$

12. $448\ \text{in.}^2$; The surface area of the box is 448 square inches, so that is the least amount of paper needed to cover the box.

14. $83\ \text{ft}^2$

16. 2 qt

March 9, 2016 Lesson 8.1 & 8.2

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Homework

In your Big Ideas Record and Practice Journal page 188.