

**Warm up:**  
**Graphic Organizer**

**Research each of the three-dimensional figures.**

**List at least 3 Characteristics, 3 Real-life examples and draw a sketch.**

Understanding  
Surface Area and  
Volume of 3-D  
Figures.



what shape is the base?

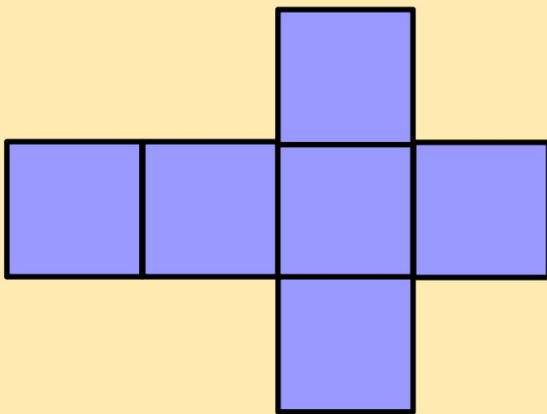
what shape is the base?





**what shape is the base?**

Surface Area	LEQ:
What is Surface Area?	The sum of the areas of all the surfaces of a figure.
Net	An outline of 3-D figure laid flat.
Faces	A flat surface of a solid.
Edge	Where two faces meet.
Vertices	Where three or more edges meet.



This shape net  
will create a...

**A** pyramid

**B** triangular prism

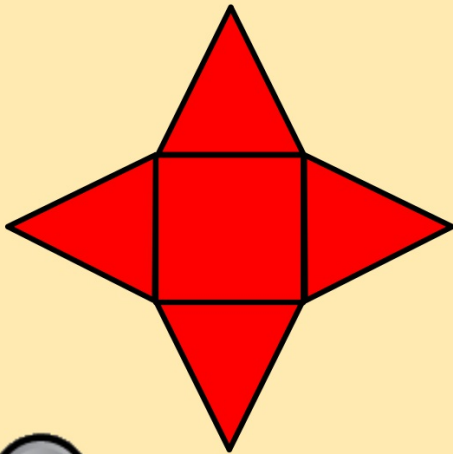
**C** cube

**D** cone

**E** cylinder

**F** square prism

what shape is the base?



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will create a...

**A** pyramid

**B** triangular prism

**C** cube

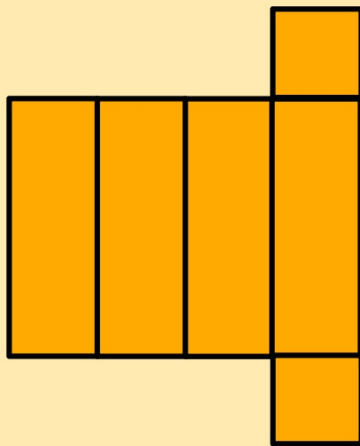
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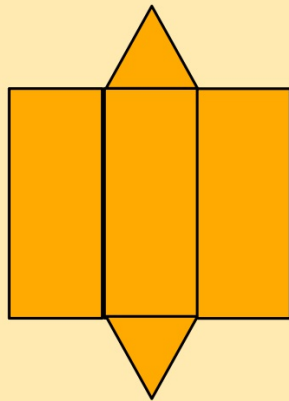
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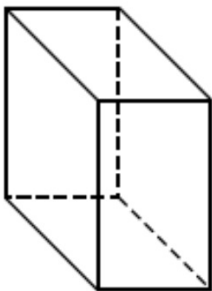
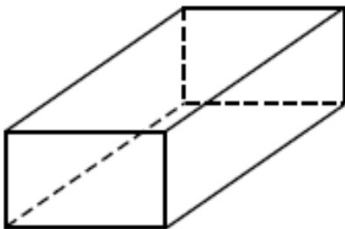
**E** cylinder

**F** square prism

what shape is the base?

# Right Rectangular Prism

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faces \_\_\_\_\_ # of sides on base + 2

edges \_\_\_\_\_ # of sides on base x 3

vertices \_\_\_\_\_ # of sides on base x 2

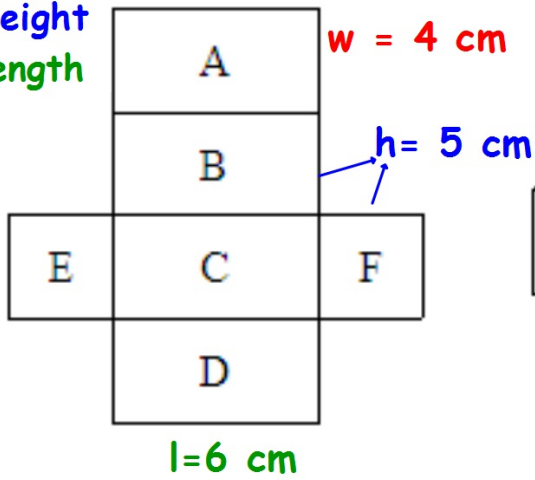
Polygon base

Named by base

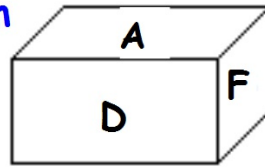
2 parallel, congruent bases



width  
height  
length



$$A = l \times w$$



$$A = 6 \times 4$$
$$A = 24$$

$$B = 6 \times 5$$
$$B = 30$$

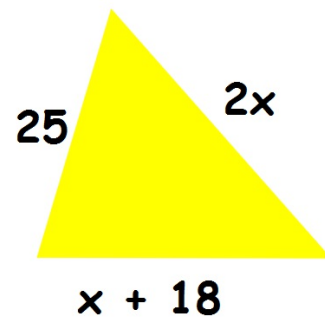
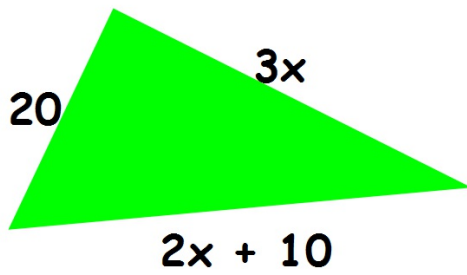
$$C = 6 \times 4$$
$$C = 24$$

$$D = 6 \times 5$$
$$D = 30$$

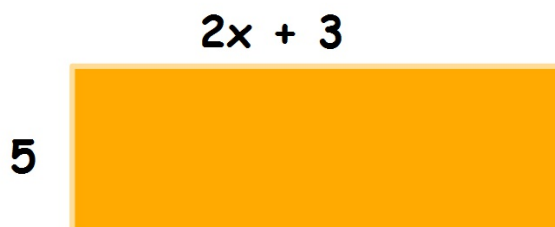
$$E = 5 \times 4$$
$$E = 20$$

$$F = 5 \times 4$$
$$F = 20$$

Try these... Find the perimeter

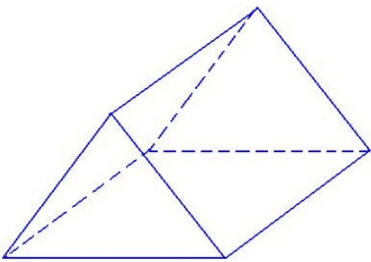
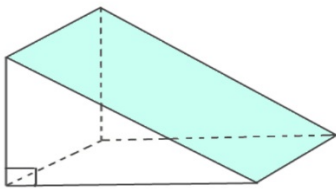


Find the perimeter and the area



# Triangular Prism

TRIANGULAR PRISM



faces \_\_\_\_\_ # of sides on base + 2

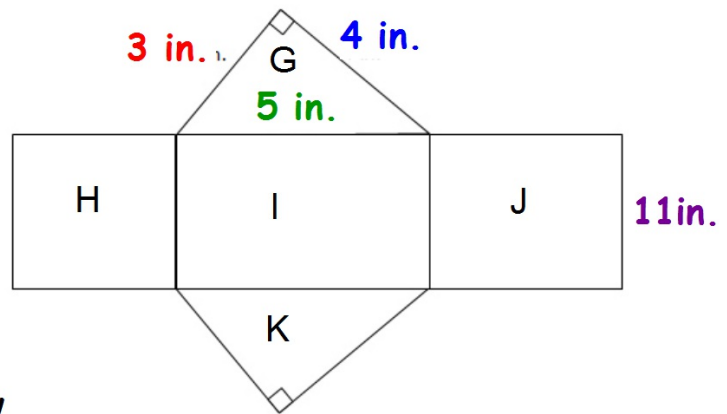
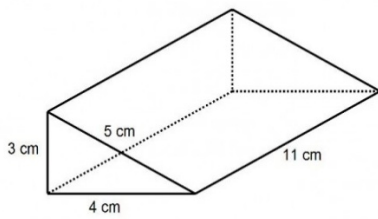
edges \_\_\_\_\_ # of sides on base x 3

vertices \_\_\_\_\_ # of sides on base x 2

Polygon base

Named by base

2 parallel, congruent bases



$$A = \frac{bh}{2}$$

$$A = l \times w$$

$$G = \frac{3 \times 4}{2} = 6$$

$$H = 11 \times 3 = 33$$

$$I = 11 \times 5 = 55$$

$$K = \frac{3 \times 4}{2} = 6$$

$$J = 11 \times 4 = 44$$

$$SA = 6 + 6 + 33 + 55 + 44 = 144$$



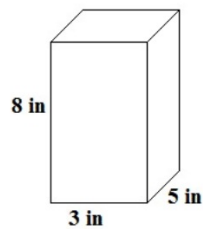
## Warm up:

1) Identify the B, P and h.

B=

P=

h=



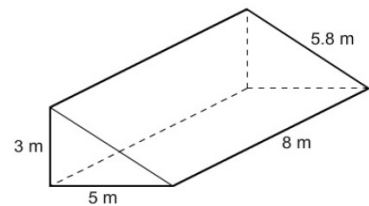
Tom and his family went to a restaurant for dinner. The bill came to \$80. They wanted to leave an 18% tip. How much tip should they leave?

2) Identify the B, P and h.

P=

B=

h=

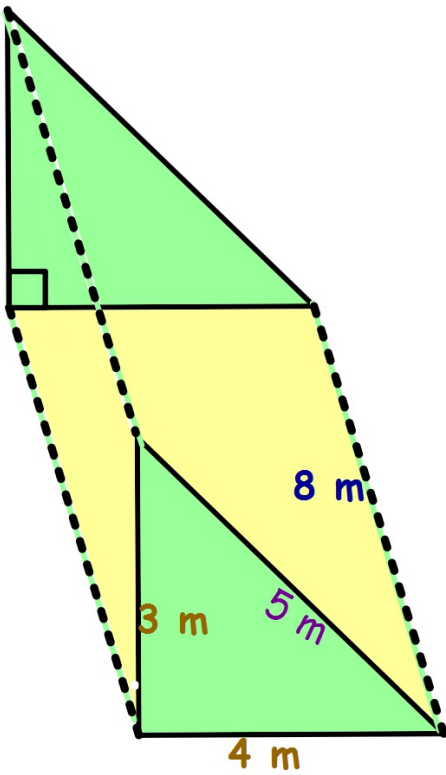


5) A turtle walks  $\frac{1}{2}$  of a mile in 50 minutes. What is this unit rate expressed in miles per hour?

6) Yesterday, the temperature was  $80^{\circ}\text{F}$ . Today, the high temperature was  $75^{\circ}\text{F}$ . What was the percent of change in the temperature?

7) 9 is what percent of 50?





### 5 STEPS TO THE SURFACE

Write the Formula.

1. **HIGHLIGHT/REDRAW BASE SHAPE!!!**

2. Find the **AREA** of **BASE SHAPE**.

3. Find the **PERIMETER** of **BASE SHAPE (P)**.

4. **Substitute information.**

5. **Solve.**

## 5 STEPS TO THE SURFACE

Write the Formula.

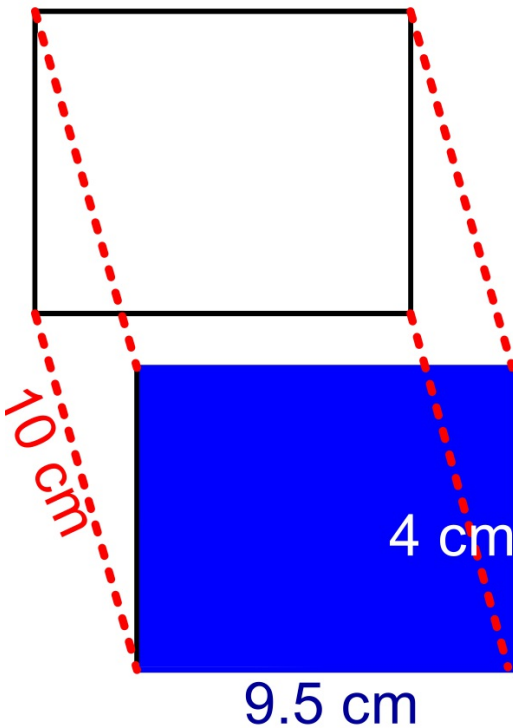
1. **HIGHLIGHT/REDRAW BASE SHAPE!!!**

2. Find the **AREA** of **BASE SHAPE**.

3. Find the **PERIMETER** of **BASE SHAPE (P)**.

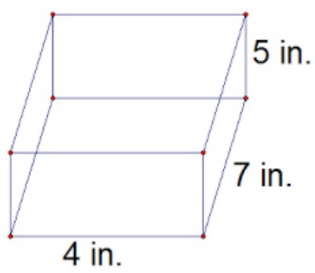
4. **Substitute information.**

5. **Solve.**

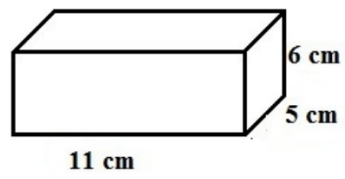


Find the Surface Area of the three dimensional shapes.

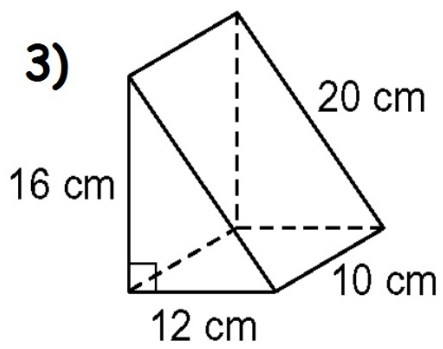
1)



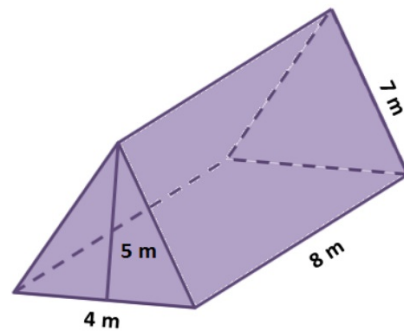
2)



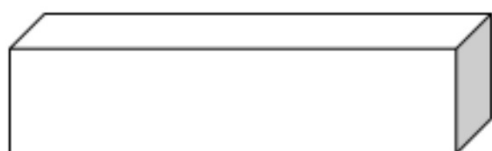
3)



4)

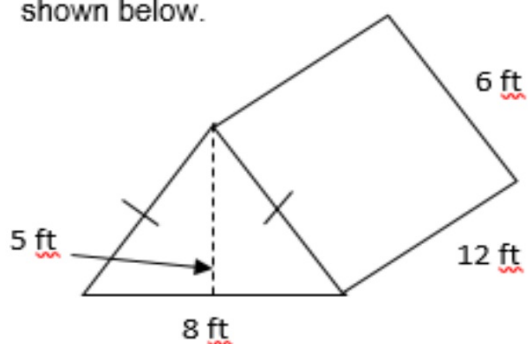


A rectangular prism is 10 centimeters long, 6 centimeters wide and 4 centimeters tall. The drawing shows the prism.



What is the total surface area of the rectangular prism?

A tent is in the shape of a triangular prism, as shown below.



How much canvas is needed to make the tent, including the bottom?

LLQ. What are the steps needed to find the surface area and volume of a

is the shape of the  
of a 3D shape  
important when finding  
surface area and volume?

### Surface Area/Volume

1. **redraw the base**
2. **area** of base
3. **perimeter** of base
4. **height** of the prism  
between the bases
5. Formulas

$$SA = 2B + PH$$



Surface Area/Volume

Width of the base

Length of base

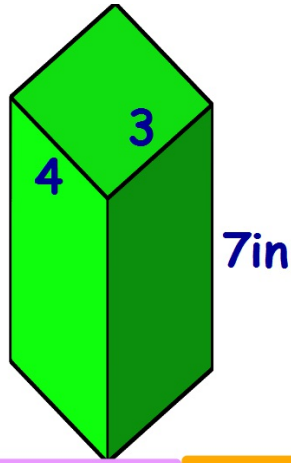
Perimeter of base

Height of the prism  
between the bases

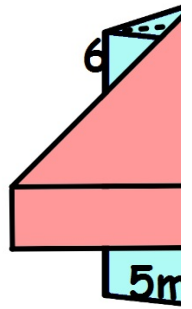
Formulas

$$SA = 2B + PH$$

$$V = BH$$



redraw the base



Base Area	Perimeter	Height <small>(number between the bases)</small>	$SA = 2B + PH$
Base Area	Perimeter	Height	$V = BH$

Surface Area/Volume

draw the base

area of redrawn

perimeter of  
own base

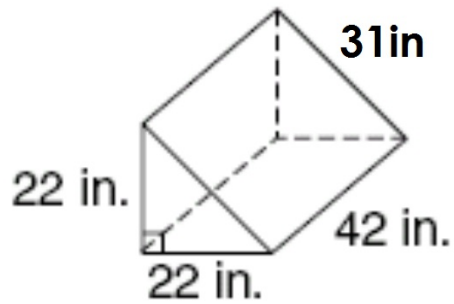
height of the  
between the  
s

formulas

$$SA = 2B + PH$$

$$V = BH$$

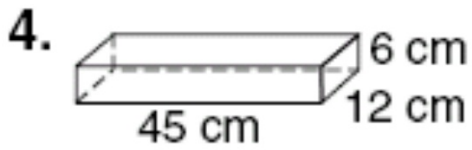
1.



redraw the base



Surface Area/Volume



redraw the base

area of redrawn

redraw the base

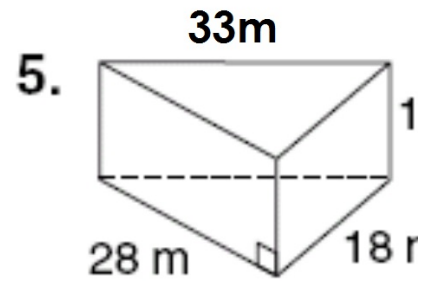
perimeter of redrawn base

height of the prism between the slanted sides

formulas

$$SA = 2B + PH$$

$$V = BH$$



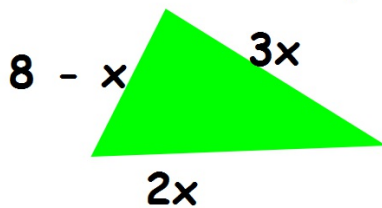
redraw the base



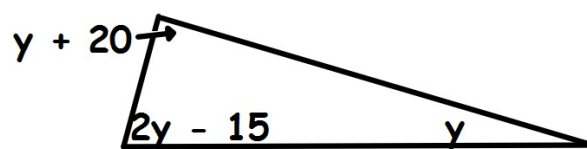


### 4/18 Warm-Up

1. Find the perimeter



2. Find the smallest angle

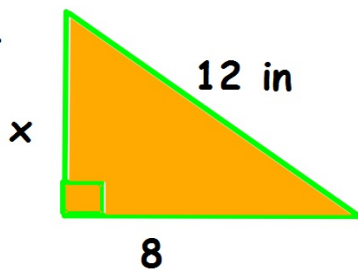


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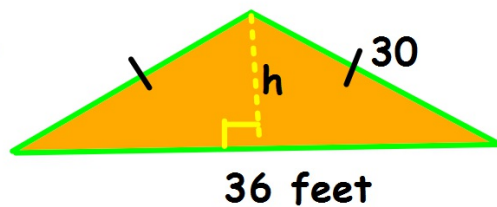
Find the largest angle....

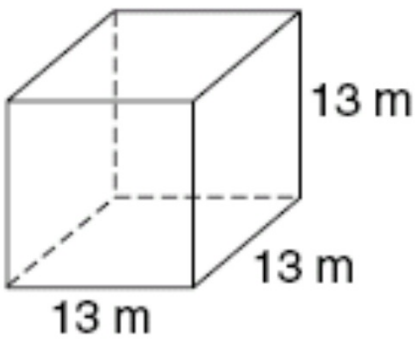
Find the area

3.



4.

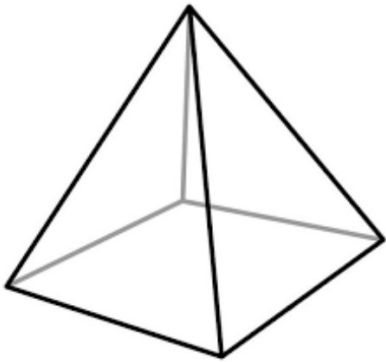




redraw the base



# Pyramid



faces \_\_\_\_\_ # of sides on base + 2

edges \_\_\_\_\_ # of sides on base x 3

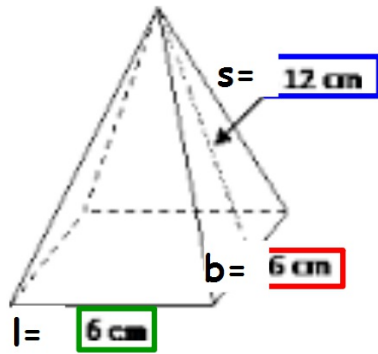
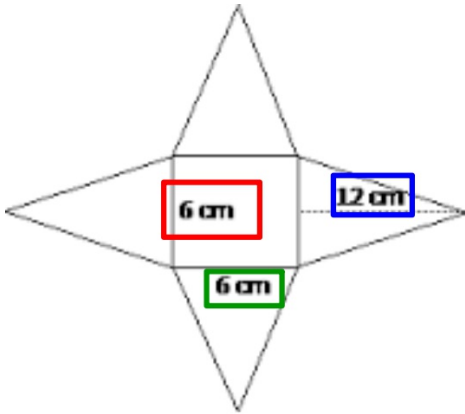
vertices \_\_\_\_\_ # of sides on base x 2

Polygon base

Named by base

2 parallel, congruent bases





$$A = \frac{b \times h}{2}$$

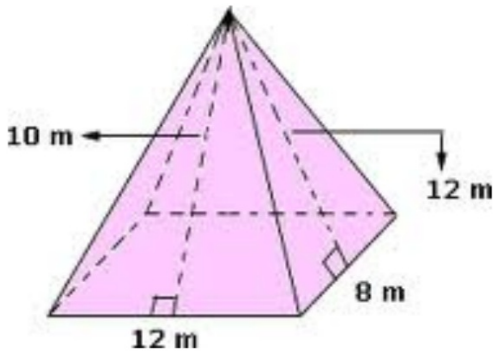
$$A = \frac{6 \times 12}{2} = 36$$

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$$\text{Surface Area} = B + 2\left(\frac{s_1 b}{2}\right) + 2\left(\frac{s_2 l}{2}\right)$$



$$A = l \times w$$

$$A = 6 \times 6 = 36$$

