LEQ: What are the steps needed to find volume?

Volume

Why is the shape of the base of a 3D shape important when finding volume?

the amount of space that fills a 3-D figure

1. redraw the base

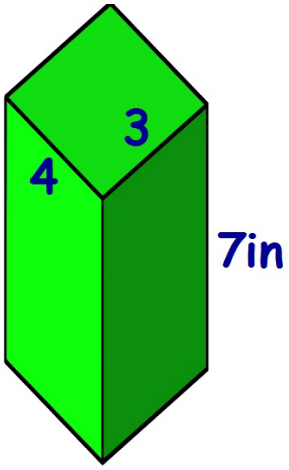
2. find the area of base

3. find the height of the prism between the bases

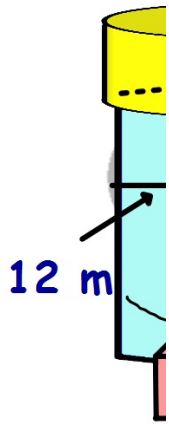
4. Formula:
   V= BH

Volume

1. redraw the base
2. area of base
3. place an x
4. height of the prism between the bases
5. Formula:
   V= BH

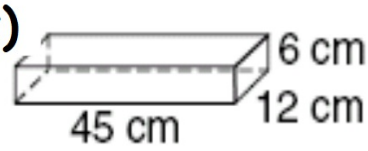


redraw the base



Base Area	Perimeter	Height	V=BH

Ex)



Surface Area/Volume

1. redraw the base

2. area of redrawn base

3. perimeter of redrawn base

4. height of the prism between the bases

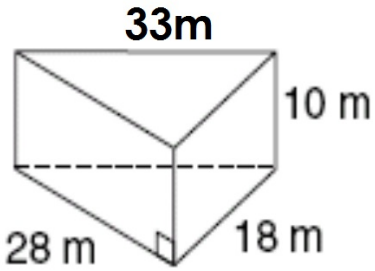
5. Formulas

SA = 2B +PH

V= BH

redraw the base

Ex)



redraw the base

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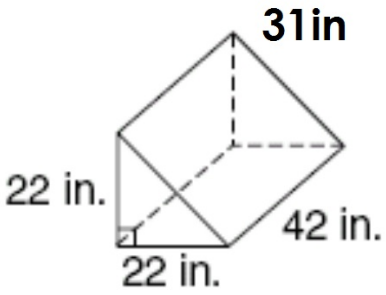
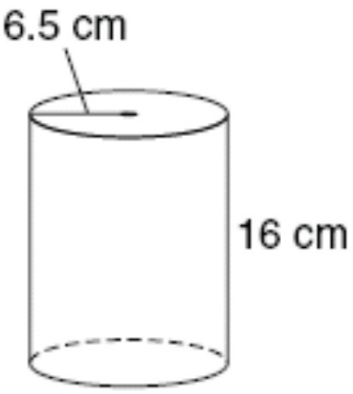
1.

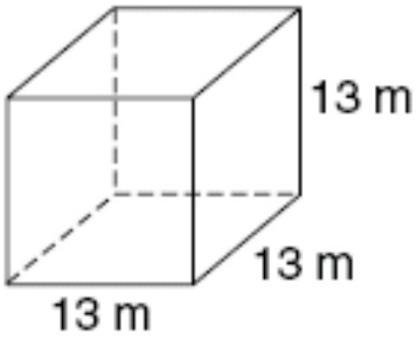


redraw the base

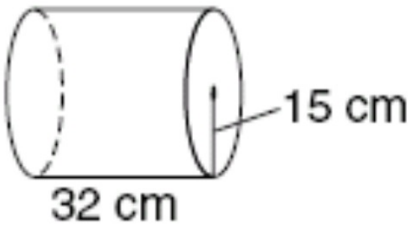
2.



redraw the base



redraw the base



redraw the base

Warm Up

Find the radius for each circle.

1) Circumference of a circle is 64. What is the radius?

$C=2\pi r$

2) Circumference of a circle is 14. What is the radius?

$C=2\pi r$

3) $A = 2\pi r^2$

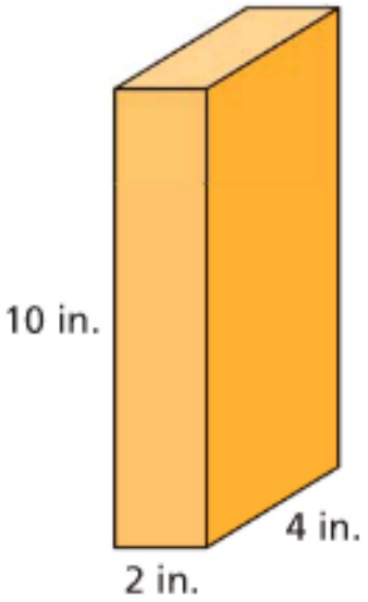
$A= 50in$

4) The area of a cirlce is 120cm what is the radius?

ATC Toy Company is considering using Save-a-Tree's Box Z to ship alphabet blocks. Each block is a 1-inch cube. ATC needs to know how many blocks will fit into Box Z

The number of unit cubes that fit in a box is the volume of the box.

1. How many cubes will fit in a single layer at the bottom of this box?
2. How many identical layers can be stacked in this box?
3. What is the total number of cubes that can be packed in this box?
4. Consider the number of cubes in each layer, the number of layers, the volume, and the dimensions of the box. What connections do you see among these measurements?



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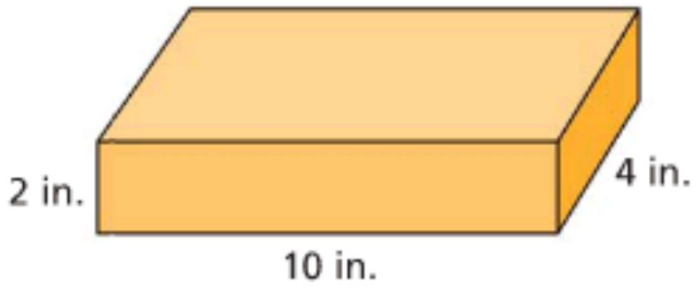
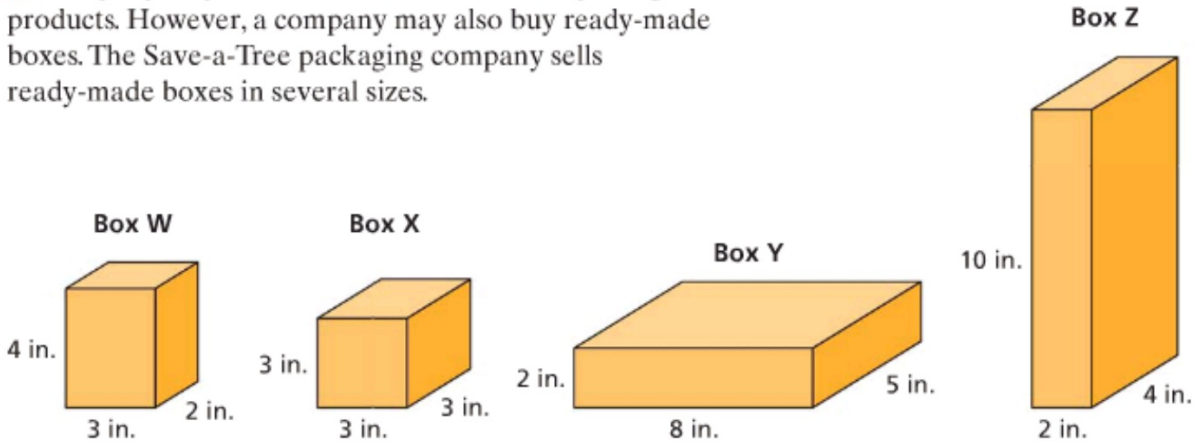
c. Suppose Box Z is put down on its side so its base is 4 inches by 10 inches and its height is 2 inches. Does this affect the volume of the box? Does this affect the surface area? Explain your reasoning.



A company may have boxes custom-made to package its products. However, a company may also buy ready-made boxes. The Save-a-Tree packaging company sells ready-made boxes in several sizes.



Filling and Wrapping

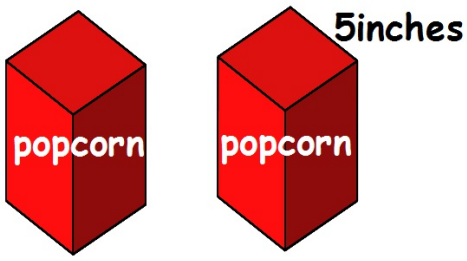
D. Apply your strategies for finding volume Boxes W, X, and Y.

M3 - Volume Activity

At the movie theater...

You can buy one large cylindrical popcorn for $9 or two small popcorns (square prism) for the same price. They both are the same height, but the small popcorn is 5 inches long; whereas the large popcorn has a diameter of twice that. Which is the better deal?

Use math to justify your answer

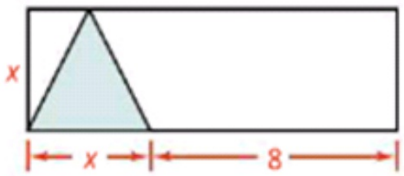


$V = BH$

$V = BH$ $V = BH$

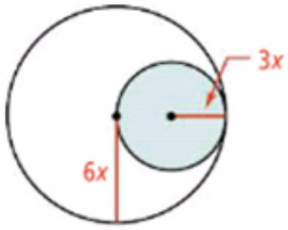
Think About a Plan In the figure at the right, what is the ratio of the area of the shaded triangle to the area of the rectangle? Write your answer in simplified form.

- What is an expression for the length of the rectangle?
- How do you find the area of a triangle?



Write a ratio in simplified form of the area of the shaded figure to the area of the figure that encloses it.

41.



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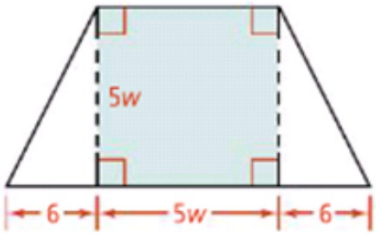
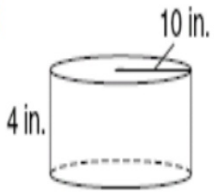


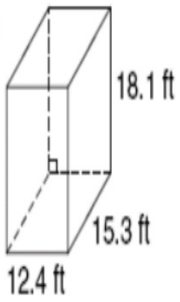
Warm Up

Find the volume of each 3-D figure.

1)



2)



3)