Unit 2 - Volume [Review / Study Guide]

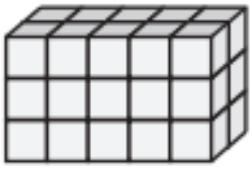
Name_____ # _____

Tell if the following statements are true or false by calculating and then writing true or false in the box beside the equation.
1. 4 x 6 = 6 + (2 x 9) TRUE 24 = 24
2. 50 - 10 = 5 x 8 40 = 40 TRUE
3. 30 ÷ 2 = 5 x 3 15 = 15 TRUE
4. 25 + 4 = 3 x 9 **29 = 27** **FALSE**

5. Explain in your own words what it means to find the volume of a 3-dimensional figure?
To find the volume of a 3-dimensional figure means to multiply length x width x height or area of the base x height. **Volume is how many unit cubes a solid figure is made of, or how many unit cubes something can hold.**

6. Wesley said that you can calculate the volume of a rectangular prism by finding the area of the base and multiplying that by the number of layers there are. Is this correct? Why or why not? Explain and justify your answer. You MAY use words, equations or pictures to explain.
Yes, she is correct. Volume can be found by multiplying length x width x height. Area = length x width. All that's left is to multiply by the height. **Height=layers.**

7. The figure below is made of cubes. Each cube measures 1 centimeter by 1 centimeter by 1 centimeter. What is the volume of the figure below?



V=LxWxH
V=5x2x3

Volume = __30_____ cubic cm.

8. The bottom layer in a rectangular prism has an area of 8 square units. The prism has a height of 4 units. What is the total volume of the prism? V= Bxh

V=8 x 4

V=32 cubic units

9. Jackson received a toy box for his birthday. The volume of the box is 180 cm^3. The box measured 10 cm high.

a. What is the area of the base? V=Bxh

180=Bx10

A= 18 cm^2

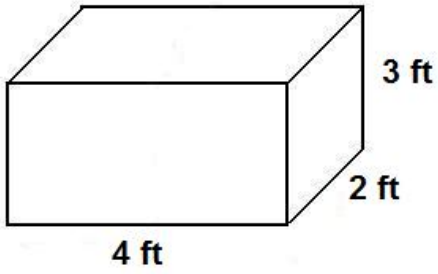
b. List ALL the possible dimensions of the base.

6 x 3 or 3 x 6 cm

9 x 2 or 2 x 9 cm

1 x 18 or 18 x 1 cm

10. A rectangular prism is shown below. What is the volume of the rectangular prism? Show your work.

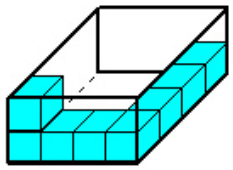


V= LxWxH

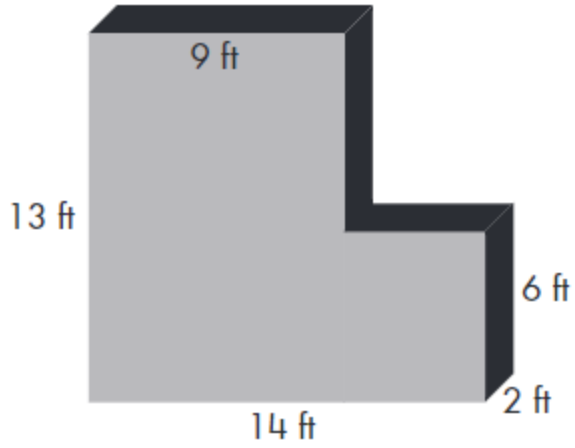
V= 4 x 2 x 3

V= 24 $ft.^3$

11. Each cube represents 1 cubic unit. The box below has 8 cubic units inside so far. How many cubic units fit in the box when it is full? V= 32 $units^3$



12. What is the volume of the figure below? Show your work.



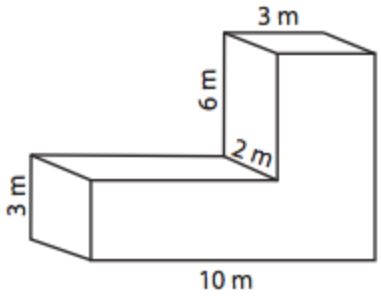
V= 9 x 2 x 13
V= 234 ft.^{3}

V= 5 x 2 x 6
V= 60 ft.^{3}

V= 294 ft.^{3}

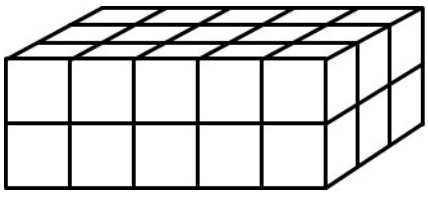
13. Find the volume of the figure.

Explain your answer in words, equations or pictures.



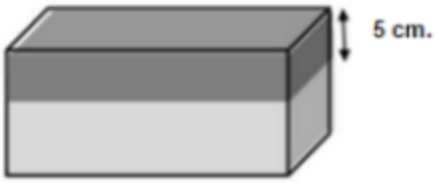
V= 96 meters^3

14. Bella and Daniel want to increase the volume of this prism by 60 cubic centimeters. Bella wants to add four layers and Daniel says they need to add 10 layers. Their teacher tells them they are both correct. **Explain** how this is possible. [You must explain using WORDS] You may also draw a picture to help you.



They are both correct, because Bella's area of the base was 15, and 15 x 4= 60 more. Daniel's area of the base was 6 (turned it up on its side), and 6 x 10= 60 more.

15. A rectangular tank with a base area of 32 cm^2 is filled with water and oil to a depth (height) of 12 cm. The oil and water separate into two layers when the oil rises to the top. If the thickness of the oil layer is 5 cm, what is the volume of the water? [HINT: 1st, figure out what the thickness (depth) of the water is.]



V= B x h

V= 32 x 7

v= 224 $cm.^3$