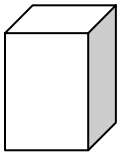
Linker Cube Volume and Surface Area Comparisons



Name_____

Write a hypothesis for whether or not you think this statement is true or false and explain why you think so:

If the two prisms have the same volume, they will also have the same surface area?

Have partners on your team build one of the following. Show the prisms to the team. Each person sketch and label the dimensions of both prisms.

a. Build and sketch a rectangular prism with dimensions: $\ell = 2$, $w = 3$, $h = 4$

b. Build and sketch a rectangular prism with dimensions: $\ell = 6$, $w = 2$, $h = 2$

1. *Count the volume of prism a.*

   Count the surface area of prism a.

2. *Count the volume of prism b.*

   Count the surface area of prism b.

Have partners on your team build one of the following. Show the prisms to the team. Each person sketch and label the dimensions of both prisms.

c. Build and sketch a rectangular prism with dimensions: $\ell = 6$, $w = 6$, $h = 1$

d. Build and sketch a rectangular prism with dimensions: $\ell = 2$, $w = 3$, $h = 6$

3. *Count the volume of prism c.*

   Count the surface area of prism c.

4. *Count the volume of prism d.*

   Count the surface area of prism d.

Have partners on your team build one of the following. Show the prisms to the team. Each person sketch and label the dimensions of both prisms.

e. Build and sketch a rectangular prism with dimensions: $\ell = 2$, $w = 2$, $h = 9$

f. Build and sketch a rectangular prism with dimensions: $\ell = 3$, $w = 3$, $h = 4$

5. Count the volume of prism e.

Count the surface area of prism e.

6. Count the volume of prism f.

Count the surface area of prism f.

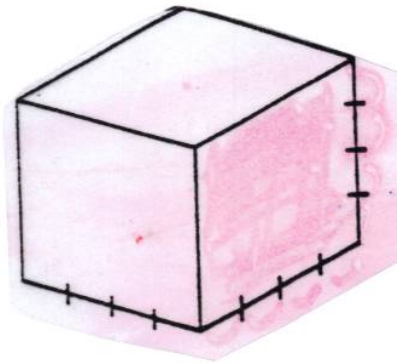
7. Explain how you could find the volume of a rectangular prism without actually needing to count every cubic unit. Use the words, "length, width, height, product" in your explanation.

8. Explain how you could find the surface area of a rectangular prism without actually counting all the square units on the exterior of the prism. Use the words, "area, faces, lateral area, bases, and sum" in your explanation.

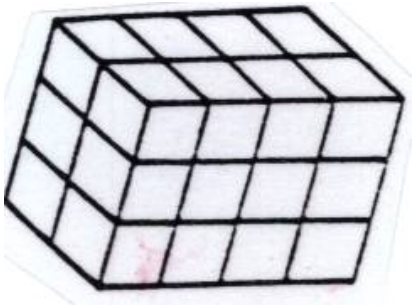
9. Was your hypothesis correct about the surface area being the same for two prisms if their volumes were the same?

10. Describe how your thinking about volume and about surface area has changed after building, sketching, and counting to find the volume and surface areas.

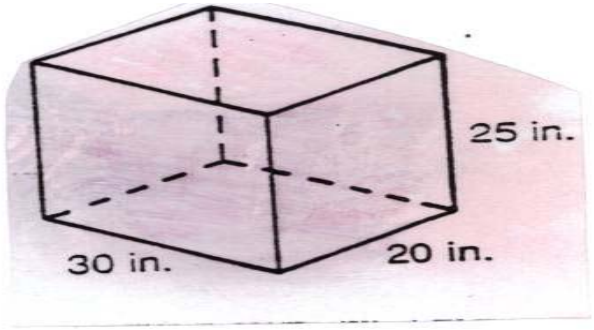
Find the surface area



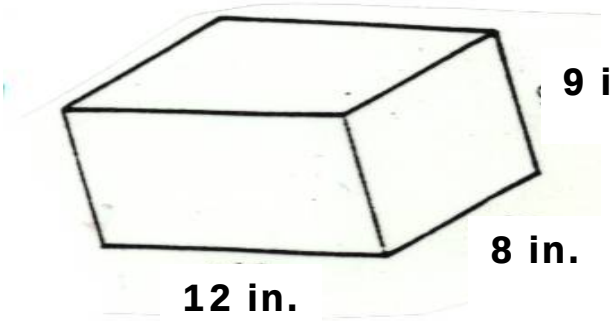
Find the volume.



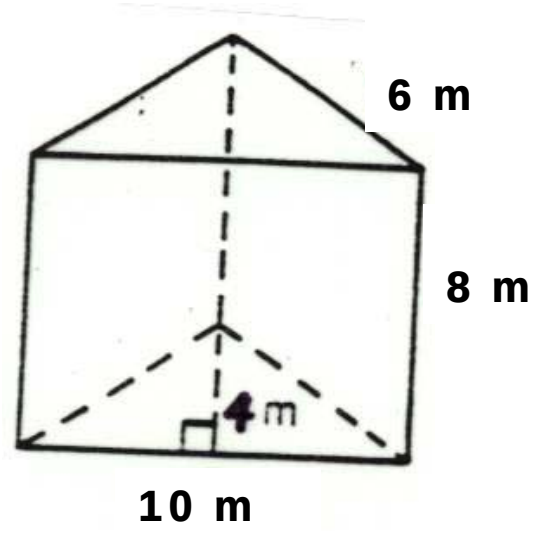
Find the surface area.



Find the volume.



Find the volume.



Find the surface area.