

NAME _____ DATE _____ PER. _____

CHANGING DIMENSIONS IN 3-D

Solve each problem as indicated.

1. _____	The dimensions of a cylinder are tripled. Describe the effect on the volume of the cylinder.
2. _____	How can the radius and height of a cylinder be changed so that the volume is multiplied by $\frac{1}{8}$?
3. _____	The radius of a cone is multiplied by $\frac{1}{3}$. Describe the effect on the volume of the cone.
4. _____	The volume of a rectangular pyramid is 400 in^3 . If the first dimension is reduced by one-fourth, the second dimension is reduced by half, and the third dimension is tripled, by what factor will the volume be affected?
5. _____	A rectangular prism has a volume of 344 cubic units. Find its volume if all the dimensions are tripled.

6. _____	The dimensions of a sphere are doubled. Describe the effect on the volume of the sphere.
7. _____	The volume of a triangular pyramid is 20 cubic mm. If the dimensions were doubled, what would the new volume be?
8. _____	The dimensions of a hexagonal pyramid are divided by 5. Describe the effect on the volume of the pyramid.
9. _____	A right triangular prism has a Volume of 48 cubic units. Find its new volume if two of its dimensions are doubled, and a third dimension is reduced to one-half its original length.
10. _____	The volume of a pyramid is 100 cubic ft. If the first dimension is doubled, the second dimension is reduced to one-sixth, and the third dimension is tripled, by what factor will the volume be affected?

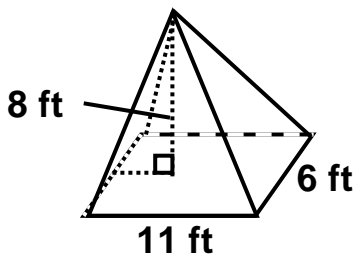
Find the correct answer for each of the following. Clearly circle its corresponding letter. Work must be shown in order to receive credit!

11. The volume of a rectangular prism is 298 cubic units. If the Dimensions are tripled, what is the volume of the figure in cubic units?

Record your answer and fill in the bubbles on the grid below. Be sure to use the correct place value.

+	•	•	•	•	•	•	•	•
-	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2
	3	3	3	3	3	3	3	3
	4	4	4	4	4	4	4	4
	5	5	5	5	5	5	5	5
	6	6	6	6	6	6	6	6
	7	7	7	7	7	7	7	7
	8	8	8	8	8	8	8	8
	9	9	9	9	9	9	9	9

12. The volume of the pyramid is 176 ft³.



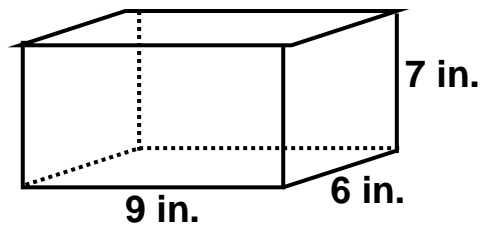
If the dimensions of the pyramid are halved, what will be the volume of the smaller pyramid?

- A. 22 ft³
- B. $58\frac{2}{3}$ ft³
- C. 66 ft³
- D. 88 ft³

13. The marketing department of a company is considering making a key chain with a miniature replica of their top-selling dishwasher detergent. The dimensions of the dishwasher detergent box are 9 inches by 7.5 inches by 2.25 inches. If the replica will be $\frac{1}{5}$ the size of the regular box, what will be the volume of the miniature replica?

- A. 1.215 cu. in.
- B. 8.37 cu. in.
- C. 30.375 cu. in.
- D. 41.85 cu. in.

14) If the length and width of the figure below are doubled, how will it affect the volume of the figure?



- A. The volume will be doubled.
- B. The volume will be quadrupled.
- C. The volume will be 8 times greater.
- D. The volume will be 14 times greater.

15) A pyramid has a rectangular base with an area of B square units. The height of the pyramid is h units. Which of the following formulas represents the volume of the pyramid after its dimensions have each been multiplied by 6?

A. $V = \frac{50}{3} Bh$

B. $V = 12 Bh$

C. $V = 48 Bh$

D. $V = 72 Bh$

16) If the volumes of two similar pyramids are 96 cubic units, and 768 cubic units, how are the pyramids related?

A. The dimensions of one pyramid are double the dimensions of the other pyramid.

B. The dimensions of one pyramid are 3 times the dimensions of the other pyramid.

C. The dimensions of one pyramid are 6 times the dimensions of the other pyramid.

D. The dimensions of one pyramid are 9 times the dimensions of the other pyramid.