

*Math 7/GEOMETRY Practice Test: Three-Dimensional Figures*

Name \_\_\_\_\_

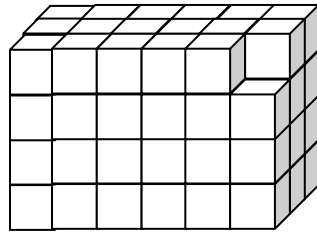
Date \_\_\_\_\_

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- 1) Define the terms below and give an example of each.
  - a. Base
  
  
  
  
  
  
  
  
  
  
  - b. Surface Area
  
  
  
  
  
  
  
  
  
  
  - c. Pyramid
  
  
  
  
  
  
  
  
  
  
  - d. Three-dimensional figure
  
  
  
  
  
  
  
  
  
  
  - e. Cross section
  
- 2) Write the formula to find the volume of any prism.
  
  
  
  
  
  
  
  
  
  
- 3) Write the formula to find the surface area of a rectangular prism.
  
  
  
  
  
  
  
  
  
  
- 4) A triangular prism has \_\_\_\_\_ vertices, \_\_\_\_\_ edges, and \_\_\_\_\_ faces.
  
  
  
  
  
  
  
  
  
  
- 5) In general, the surface area of a solid with congruent bases and faces is found by multiplying the area of the base times the total number of faces.

True or False?

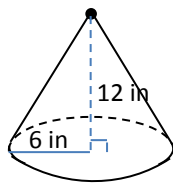
- 6) Find the volume and surface area of the prism below.



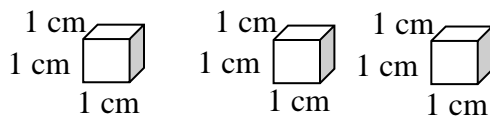
Volume = \_\_\_\_\_

Surface area = \_\_\_\_\_

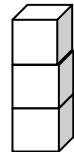
- 7) Find the volume of the cone to the nearest unit. (Use 3.14 for  $\pi$ )



- 8) (CRT) In the diagram below, figure 1 shows 3 blocks that each measure 1 cm by 1 cm by 1 cm. Figure 2 shows the three blocks from figure 1 stacked directly on top of each other and glued together to form one large block.



**Figure 1**

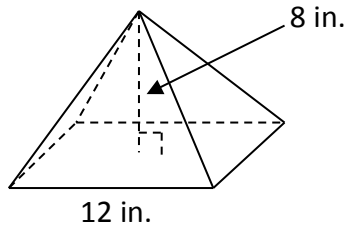


**Figure 2**

What is the surface area of the large block shown in figure 2?

A.	$3\text{ cm}^2$
B.	$6\text{ cm}^2$
C.	$14\text{ cm}^2$
D.	$18\text{ cm}^2$

- 9) (CRT) A square pyramid is shown in the diagram below. Each of the congruent triangles have a height of 9 inches. Find the surface area and the volume of the prism.

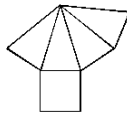


Volume = \_\_\_\_\_

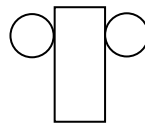
Surface area = \_\_\_\_\_

- 10) Identify the solid figure for each given net.

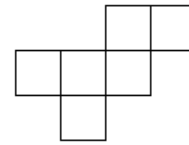
a)



b)

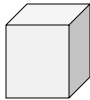


c)



- 11) Draw and describe 3 different possible cross section of the cube with the name of its shape.

a)



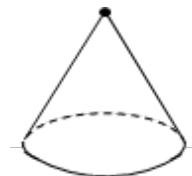
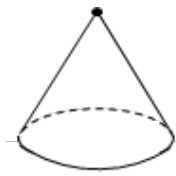
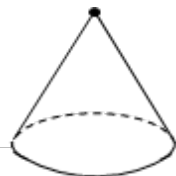
b)



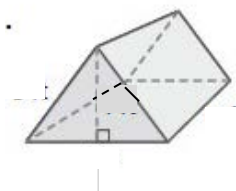
c)



- 12) Draw 3 different possible cross sections of a cylinder and name its shape.



- 13) Identify the cross section of a triangular prism as described:



The horizontal cross section would be a \_\_\_\_\_.

The vertical cross section would be a \_\_\_\_\_.

- 14) Circle all the cross sections that are possible in a cylinder.



square  
trapezoid

rectangle  
parallelogram

triangle  
pentagon

circle  
oval

- 15) A toy box measures 7 ft by 4 ft by 2 ft. If the width and the height were doubled, how would the volume of the box change? Show your work to justify your answer.

- 16) A composite figure is formed by joining a cylinder and a rectangular prism. The cylinder sits on top of the cube. The length of the diameter of the cylinder and the side lengths of the cube are the same. If the sides of the cube are 7 centimeters, and the height of the cylinder is 3 centimeters, what is the surface area of the figure?

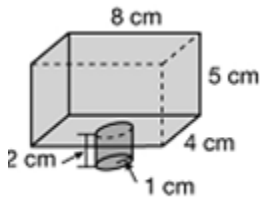
a. Draw a sketch and label the dimensions.

b. Find the surface area of the composite figure.

- 17) Can two or more solids have the same volume when they have different surface areas? Draw and label diagrams to support your answer. Show all your work.

18) What would the horizontal cross section of ANY prism be? Explain how can you prove this conjecture?

19) Find the volume of the composite figure. Round your answer to the nearest tenth. Use  $\pi \approx 3.14$ .



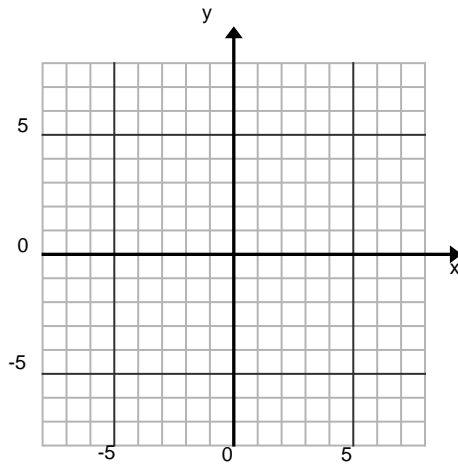
20) A machine can pack a 2 ft. by 3 ft. by 4 ft. carton with Styrofoam “peanuts” in 5 seconds. How long would it take to fill a carton that measures 4 ft. by 5 ft. by 6 ft.?

A.	50 sec
B.	30 sec
C.	25 sec
D.	24 sec

Long-Term Memory Review

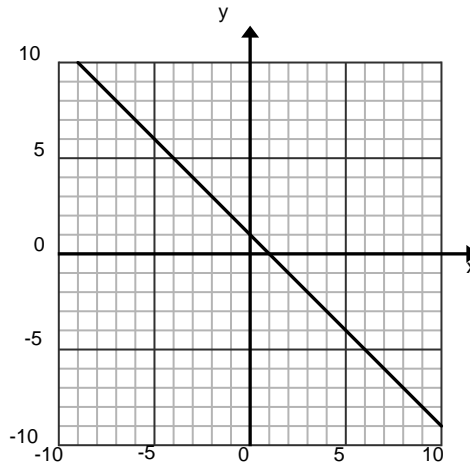
21) Draw a model to solve 75% of what is 150?

22) Graph and find the area of the figure with vertices  $(-2, -2), (-4, 4), (3, 4), (6, -2)$ .



23) Which equation describes the graph shown?

- A.  $y = -2x + 1$
- B.  $y = 2x - 1$
- C.  $y = -x + 1$
- D.  $y = x + 1$



24) Find the area of the figure below.

