

SAMPLE PAGES FOR

SOUTH CAROLINA 3RD GRADE MATHEMATICS

SECOND EDITION

CHALLENGE THE

PALMETTO **A**CHIEVEMENT **C**HALLENGE **T**EST

BY

JANE HEREFORD

CPC

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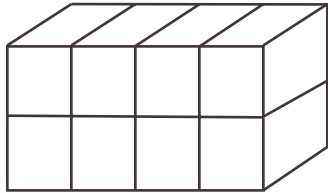
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THREE-DIMENSIONAL FIGURES



Three-dimensional figures have 3 different views (ways of being seen).

side (end) view



front or back view



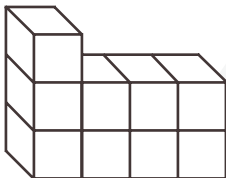
top or bottom view



PRACTICE

Draw the side (end) view, front/back view, and top/bottom view of each 3-dimensional figure.

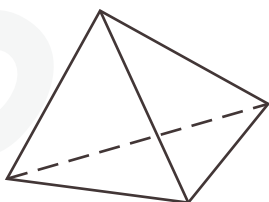
1.



2.

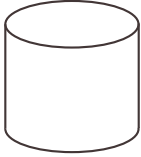


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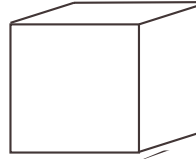


Draw the top view of the following figures.

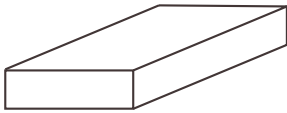
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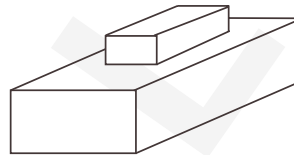
6.



5.



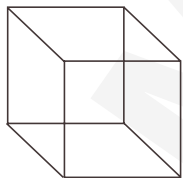
7.



FACES, EDGES, AND VERTICES

Faces of a 3-dimensional figure are the polygons and their interiors.

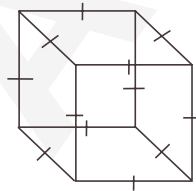
EXAMPLE



A cube has 6 square faces.

Edges of a 3 dimensional figure are line segments where the faces intersect.

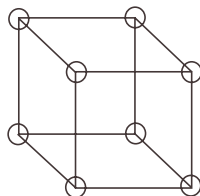
EXAMPLE



A cube has 12 edges.

Vertices of a 3-dimensional figure are points where the edges intersect.

EXAMPLE

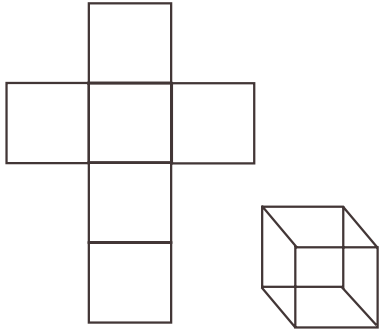


A cube has 8 vertices.

MAKING FIGURES

EXAMPLE

What 3-dimensional figure will the 2-dimensional pattern make when folded?

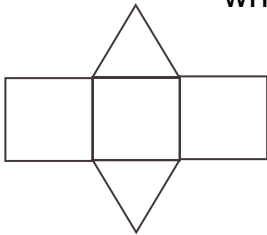


A cube.

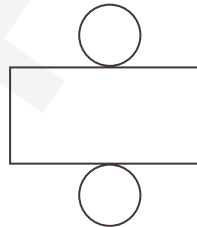
PRACTICE

Draw the 3-dimensional figure that will be made when the 2-dimensional pattern is folded.

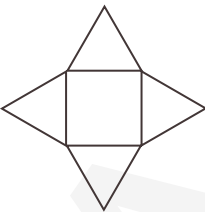
1.



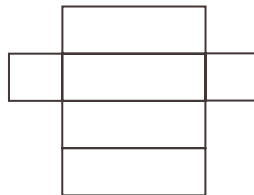
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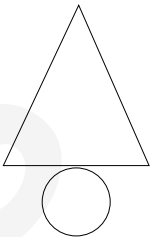
3.



4.

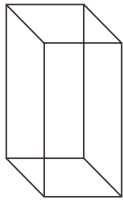


5.



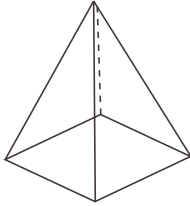
How many faces, vertices, and edges are in each figure?

6. Rectangular Solid



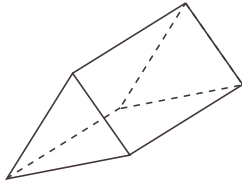
faces _____
vertices _____
edges _____

7. Pyramid



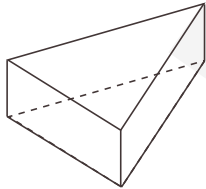
faces _____
vertices _____
edges _____

8. Triangular Prism



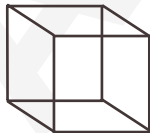
faces _____
vertices _____
edges _____

9. Triangular Prism



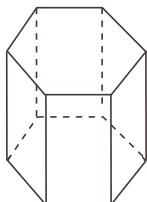
faces _____
vertices _____
edges _____

10. Cube



faces _____
vertices _____
edges _____

11. Hexagonal Prism



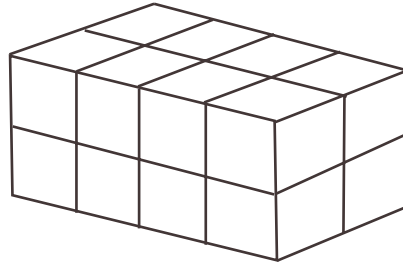
faces _____
vertices _____
edges _____

VOLUME

Volume is how much something can hold.

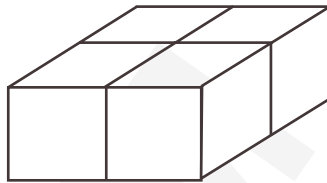
EXAMPLES

How many cubes were used to build this figure?



There are 2 layers of 8 cubes so there are 16 cubes.

Draw a figure with a volume of 4 cubes.



PRACTICE

Draw a figure for each volume.

1. 9 cubes

2. 6 cubes

3. 8 cubes

4. 10 cubes

5. 12 cubes

6. 3 cubes

7. 2 cubes

8. 14 cubes

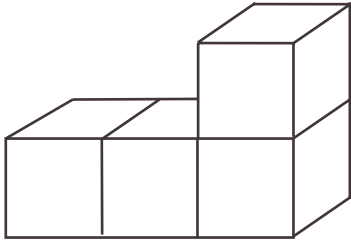
9. 15 cubes

10. 18 cubes

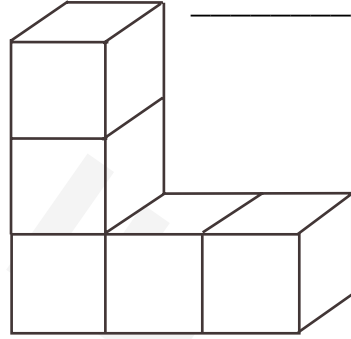
(continued on next page)

Find the volume of each figure.

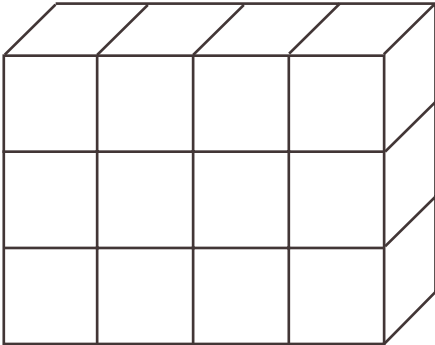
11.



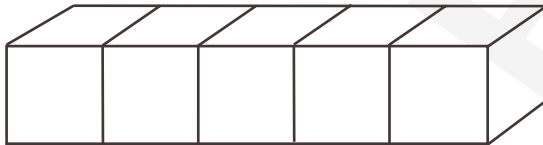
12.



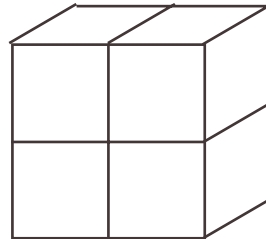
13.



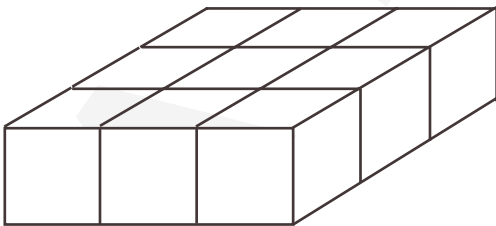
14.



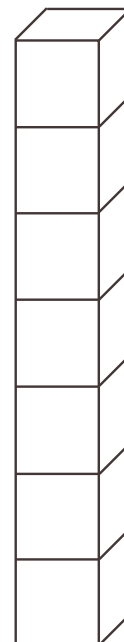
15.



16.

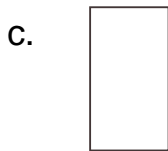
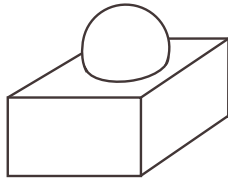


17.



REVIEW

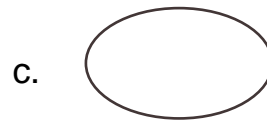
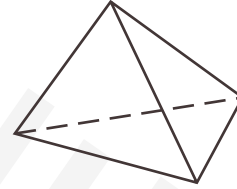
1. What is the top view of this figure?



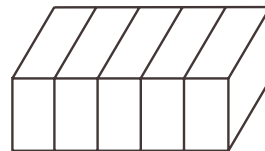
2. What is the bottom view of the figure in question #1?



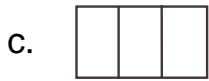
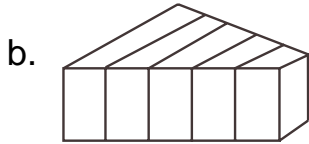
3. What is the side view of this figure?



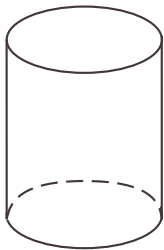
4. What is the side (end) view of this figure?



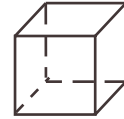
5. What is the bottom view of the figure in question 4?



6. What is the bottom view of this figure?



7. What is the side view of this cube?



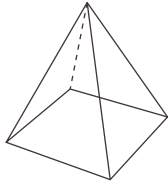
8. What is the top view of the figure in #7?



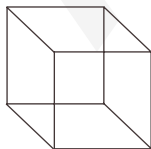
9. How many edges and vertices does this figure have?



- a. 9 edges and 6 vertices
 - b. 5 edges and 8 vertices
 - c. 10 edges and 10 vertices
 - d. 6 vertices and 9 edges
10. Which of the following statements is true about this figure?



- a. This pyramid has 8 faces and 5 edges.
 - b. This pyramid has 6 faces and 10 edges.
 - c. This pyramid has 4 faces and 0 edges.
 - d. This pyramid has 5 faces and 8 edges.
11. How many faces does this figure have?



- a. 4 faces
- b. 8 faces
- c. 6 faces
- d. 7 faces

12. What is the 3-dimensional figure shown below?

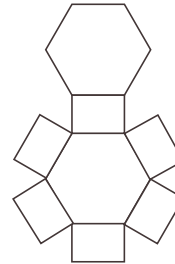
top view

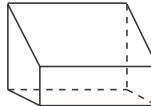

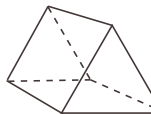
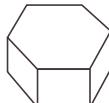


bottom view



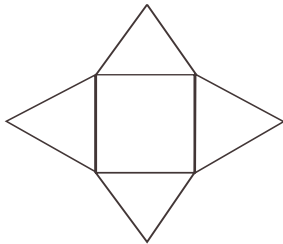
- a. cube
 - b. pyramid
 - c. cone
 - d. cylinder
13. What 3-dimensional figure would be made when you fold this 2-dimensional figure?



- a. 
- b. 
- c. 
- d. 

14. What 3-dimensional figure would be made when you fold this 2-dimensional figure?

- a. cylinder
- b. pyramid
- c. cone
- d. cube



15. Which figure has a circle as its base?

- a. cube
- b. pyramid
- c. cone
- d. triangle

16. Which 2-dimensional figure



when it is unfolded?

- a.
- b.
- c.
- d.

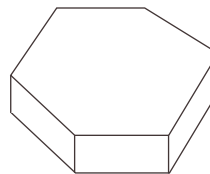
17. What figure can have a square as its base?

- a. cone
- b. pyramid
- c. cylinder
- d. sphere

18. Marlowe is painting the dots on a block to represent a die. On how many faces must she paint dots?

- a. 4
- b. 8
- c. 6
- d. 9

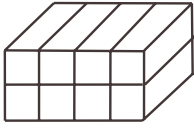
19. What shapes make up the faces of this 3-dimensional figure?



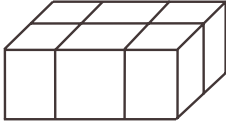
- a. 2 pentagons and 6 squares
- b. 6 squares and 2 triangles
- c. 2 hexagons and 6 rectangles
- d. 2 triangles and 6 rectangles

20. Which of the following has the greatest volume?

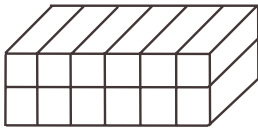
a.



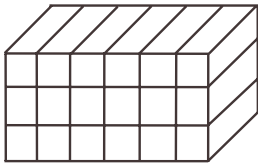
b.



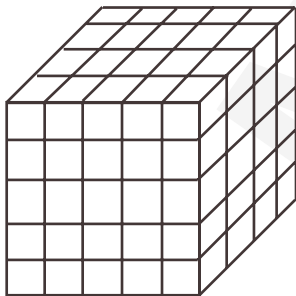
c.



d.

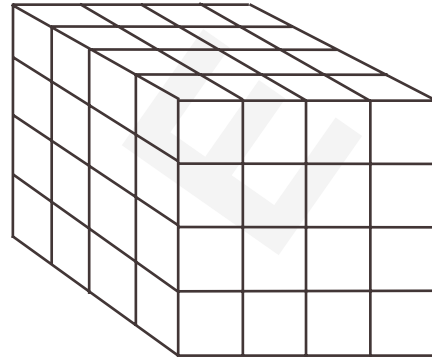


21. What is the volume of this block?



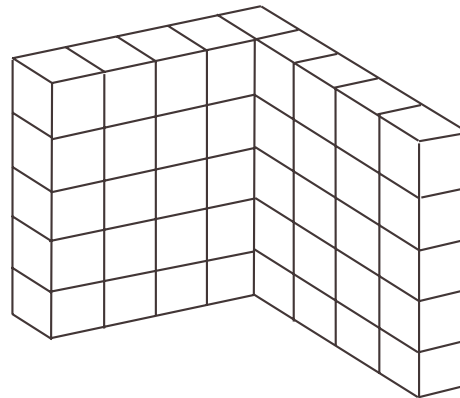
- a. 100
- b. 20
- c. 140
- d. 120

22. This cube is marked for volume. What is the model's volume?



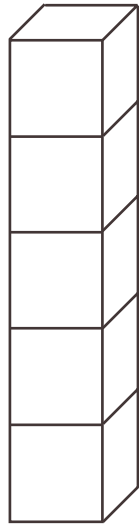
- a. 64
- b. 16
- c. 12
- d. 512

23. If each block has a volume of 1cm^3 , what is the volume of this figure?



- a. 50 cm^3
- b. 32 cm^3
- c. 45 cm^3
- d. 49 cm^3

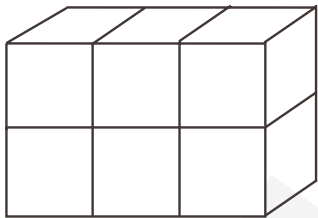
24. How many cubes were used to build this figure?



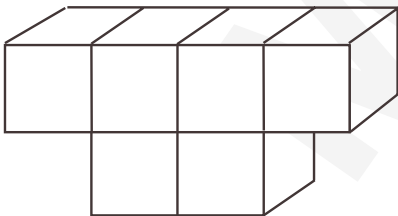
- a. 4
- b. 10
- c. 5
- d. 6

25. Which figure has the smallest volume?

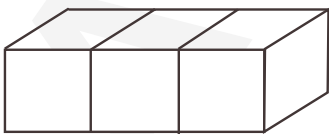
a.



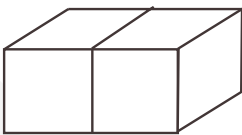
b.



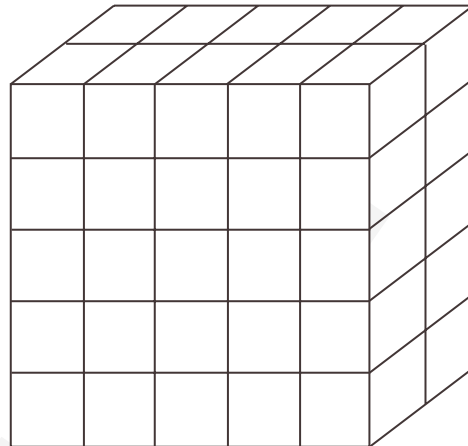
c.



d.



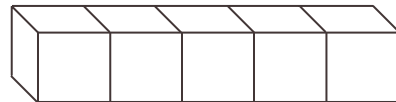
26. How many cubes were used to build this figure?



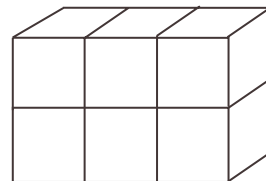
- a. 25
- b. 50
- c. 20
- d. 65

27. If Abigail has 10 blocks, which figure can she build?

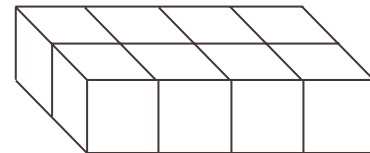
a.



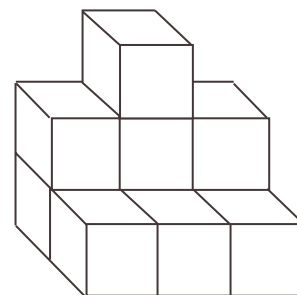
b.



c.



d.

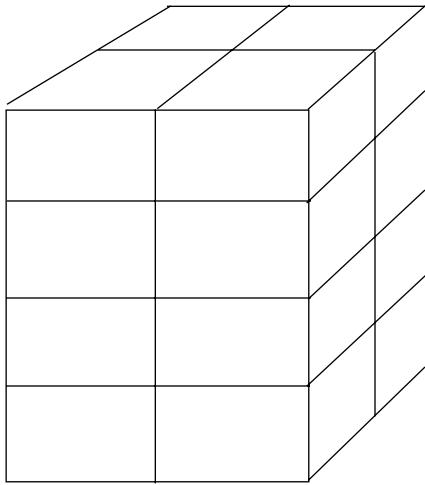


OPEN-ENDED QUESTIONS

1. Draw a three-dimensional figure with a volume of 6 cubes.

Explain in words how you planned and completed your three-dimensional figure.

2. What is the volume of this three-dimensional figure?



For this response, make sure you:

- ___ show all your work in solving the problem.
- ___ clearly label your answer.
- ___ tell in words **how** you solved the problem.
- ___ tell in words **why** you did the steps you did to solve the problem.
- ___ write as clearly as you can.