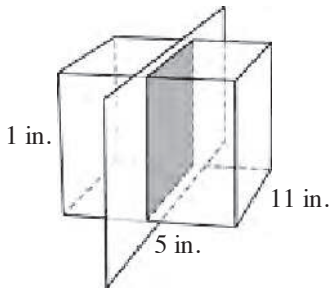
Name _____ Class _____ Date _____

Practice 12-4

2-D Slices of Right Rectangular Prisms

1. What are the dimensions of the vertical cross section of the right rectangular prism? Note that the figure is not drawn to scale.

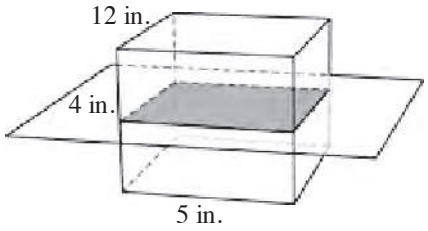


❍ A. 11 in., 1 in.

❍ B. 11 in., 5 in.

❍ C. 5 in., 1 in.

2. What are the dimensions of the horizontal cross section of the right rectangular prism? Note that the figure is not drawn to scale.

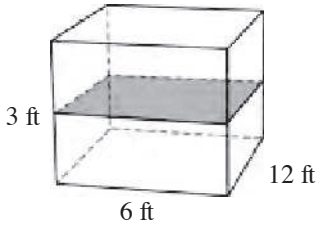


❍ A. 5 in., 4 in.

❍ B. 12 in., 5 in.

❍ C. 12 in., 5 in.

3. Which is the best description of the horizontal cross section of the rectangular prism? Note that the figure is not drawn to scale.

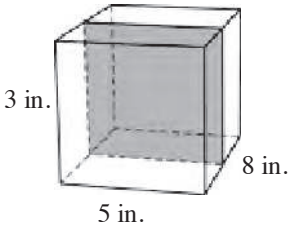


❍ A. The horizontal cross section is a rectangle.

❍ B. The horizontal cross section is a right rectangular prism.

❍ C. The horizontal cross section is a square.

4. Which is the best description of the vertical cross section of the rectangular prism? Note that the figure is not drawn to scale.

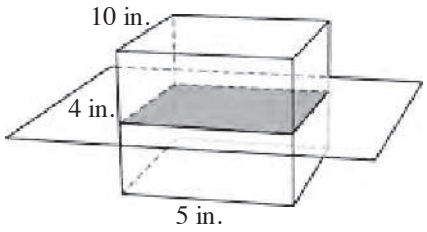


❍ A. The vertical cross section is a right rectangular prism.

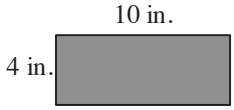
❍ B. The vertical cross section is a rectangle.

❍ C. The vertical cross section is a square.

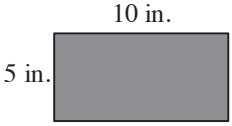
5. a) Writing Which of the following two-dimensional figures shows the dimensions of the horizontal cross section of the right rectangular prism? Note that the figure is not drawn to scale.



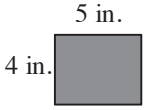
❍ A.



❍ B.

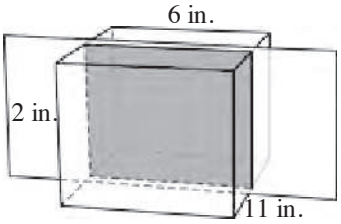


❍ C.

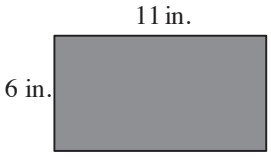


b) Explain why there can be two vertical cross sections for a right rectangular prism and only one horizontal cross section.

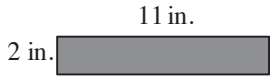
6. a) Reasoning Which of the following two-dimensional figures shows the dimensions of the vertical cross section of the right rectangular prism? Note that the figure is not drawn to scale.



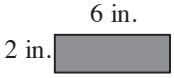
❍ A.



❍ B.

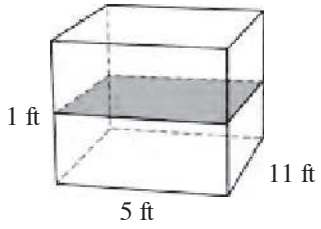


❍ C.



b) Suppose you were only given two different vertical cross sections of a right rectangular prism. Could you draw the prism? Explain your reasoning.

7. Error Analysis A math test asks the students to write a description for the horizontal cross section of the rectangular prism. Dyan says that the cross section is a rectangle. She also says the dimensions of the cross section are the length from the front of the prism to the back and the height of the prism.



a) Which is the best description of the horizontal cross section and its dimensions? Note that the figure is not drawn to scale.

❍ A. The horizontal cross section is a rectangle. The dimensions are the length from the front of the prism to the back and the width of the prism.

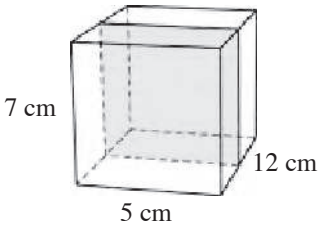
❍ B. The horizontal cross section is a square. The dimensions are the length from the front of the prism to the back and the width of the prism.

❍ C. The horizontal cross section is a rectangle. The dimensions are the width from the left side of the prism to the right side and the height of the prism.

b) What error might Dyan have made?

- ❍ A. Dyan said one dimension was the height when it should have been the width of the prism.
- ❍ B. Dyan gave the wrong shape of the cross section.
- ❍ C. Dyan said one dimension was the length when it should have been the width of the prism.

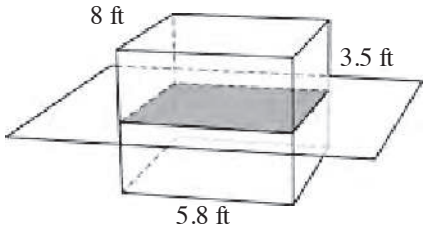
8. Cooking Xavier is taking cooking lessons. He is slicing butter for the meal he is preparing.



Which is the best description of the vertical cross section which is created when the butter, the three-dimensional figure, is sliced by the knife, the plane?

- ❍ A. The vertical cross section is a rectangle. The dimensions are length from the front of the prism to the back and the width of the prism.
- ❍ B. The vertical cross section is a square. The dimensions are the length from the front of the prism to the back and the width of the prism.
- ❍ C. The vertical cross section is a rectangle. The dimensions are the width from the left side of the prism to the right side and the height of the prism.

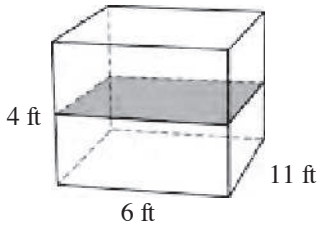
9. a) Estimation Which of the following are the correct dimensions of the horizontal cross section? Note that the figure is not drawn to scale.



- ❍ A. 5.8 ft × 8 ft
- ❍ B. 3.5 ft × 8 ft
- ❍ C. 3.5 ft × 5.8 ft

b) Estimate the area of the cross section.

10. a) Which is the best description of the cross section of the rectangular prism? Note that the figure is not drawn to scale.



- ❍ A. The cross section is a rectangle which has the same length and width as the prism.
- ❍ B. The cross section is a square which has the same length and width as the prism.
- ❍ C. The cross section is a rectangle which has the same length but different width as the prism.
- ❍ D. The cross section is a rectangle which has a different length but same width as the prism.

b) Is it possible to have a horizontal cross section with different dimensions if you had the plane intersect the prism in another spot?

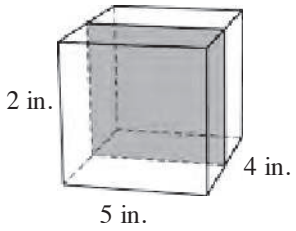
11. Challenge A right rectangular prism has length 104 in. and width 66 in. The prism is 54 in. tall.

a) What are the dimensions of a horizontal cross section of the prism?

- ❍ A. 54 in. × 104 in.
- ❍ B. 66 in. × 104 in.
- ❍ C. 54 in. × 66 in.

b) How could the dimension of a horizontal cross section change? Explain.

12. a) Challenge What are the dimensions of the vertical cross section shown? Note that the figure is not drawn to scale.



- ❍ A. 5 in. × 4 in.
- ❍ B. 2 in. × 5 in.
- ❍ C. 2 in. × 4 in.

b) What are the dimensions of a vertical cross section perpendicular to the one shown?

- ❍ A. 5 in. × 4 in.
- ❍ B. 2 in. × 4 in.
- ❍ C. 2 in. × 5 in.

c) Estimate the dimensions of a diagonal slice from the top of the front face to the bottom of the back face. Explain your reasoning.