



Additional Practice 11-5

Use Appropriate Tools

Another Look!

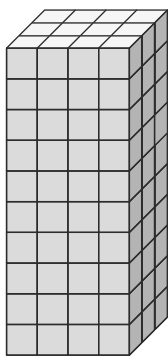
Francine is designing a small birdhouse shaped like a rectangular prism. It needs to have a volume of 120 cubic inches. She wants the height to be 10 inches. What could the length and width of the floor be?



10 in.

One Way

Build a model with cubes. Since the volume is 120 cubic inches, use 120 cubes.

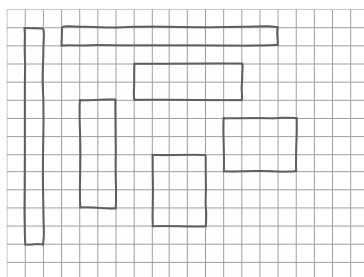


So, one possibility is that the length is 4 inches and the width is 3 inches.

Another Way

Use grid paper to design the floor.

The height is 10 inches, so the area of the floor is $120 \div 10 = 12$. Use grid paper to draw some possible floors with an area of 12 square inches.



One possibility is that the length is 4 inches and the width is 3 inches.

Use Appropriate Tools

An architect is designing different vacation cottages that are shaped like rectangular prisms that are side-by-side.

1. The height of one cottage will be 3 meters, and the volume will be 108 cubic meters. What tool can help you find different dimensions for the floor? Give two different possible pairs of dimensions for the floor. Explain.

Sometimes there is more than one tool that can help you solve problems.



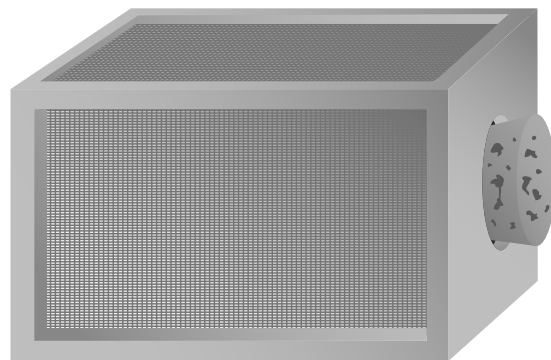
2. Can you think of a different tool to use to solve this problem? Explain.



Performance Task

Making a Bug Barn

Wendy is going to use screening and wood to make a bug barn for her little sister. It will have the shape of a rectangular prism. Wendy thinks it will take about 2 hours to make the bug barn.



- 3. Use Appropriate Tools** What tools might Wendy use?

- 4. Reasoning** Wendy wants the volume to be 80 cubic inches. What dimensions could the bug barn have?

- 5. Reasoning** Wendy decides that 80 cubic inches is too small. So she plans on building a barn with a volume of 108 cubic inches. What dimensions could this bug barn have?

- 6. Make Sense and Persevere** Wendy searches the Internet and finds a bug barn that is 7 inches long, 4 inches wide, and 3 inches tall. If she wants to build a bug barn with volume greater than this, would either of the above barns work? Explain.

- 7. Critique Reasoning** Wendy thinks that if she doubles all of the dimensions of a bug barn, its volume will also double. Do you agree? Use one of the above bug barns to show your work.