

Name _____ Class _____ Date _____

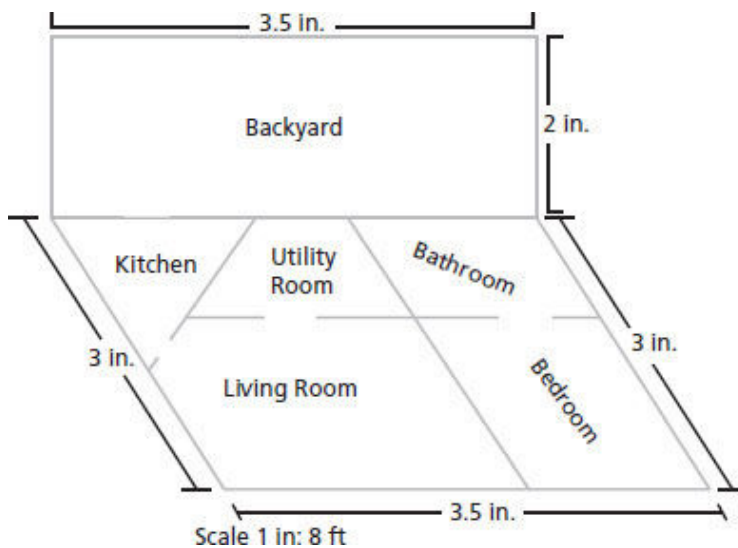
UNIT 4

COMMON CORE

Problem Solving Connections

CC.7.G.1
 CC.7.G.2
 CC.7.G.3
 CC.7.G.5

Buying a Home Tina and Raul are buying a new house. The blueprint shows the layout of the bottom floor of the home and its backyard.



1 Measuring

A Complete the table.

Blueprint length (in.)	1	1.5	2	2.5	3	3.5	4
Actual length (ft)	8	12					

B Use the table to find the find the given lengths.

Front of house: _____ ft Length of backyard: _____ ft

Sides of house: _____ ft Width of backyard: _____ ft

C Tina and Raul want to put a fence around the backyard. How much fencing do they need?



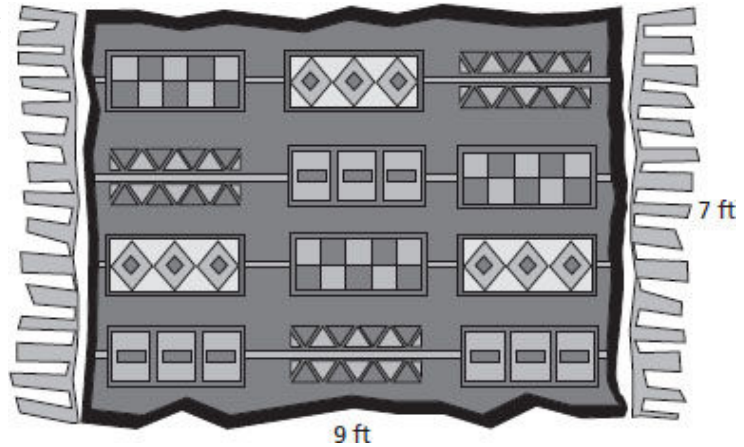
D Also in the backyard Raul decides to put down a path from the back door straight across the yard to the fence. Each square stone has a length of 0.5 feet. How many stones will fit across the yard? Show your work below.

- E** Tina wants to place a shelving unit in the utility room along the back wall. The unit she has is 7 feet in length. Will the shelving unit fit along the back wall of the utility room if it measures 0.75 inches in the blueprint? Explain.

2 Decorating

- A** Tina wants to put a large rug in the living room. The rug is shown at right. Tina estimates she can place a rug in an $1\frac{1}{2}$ in.-by- $1\frac{1}{2}$ in. area in the living room.

Find the actual area of the rug that Tina thinks will fit in the living room. Determine if her rug can be placed in the living room. Show your work.



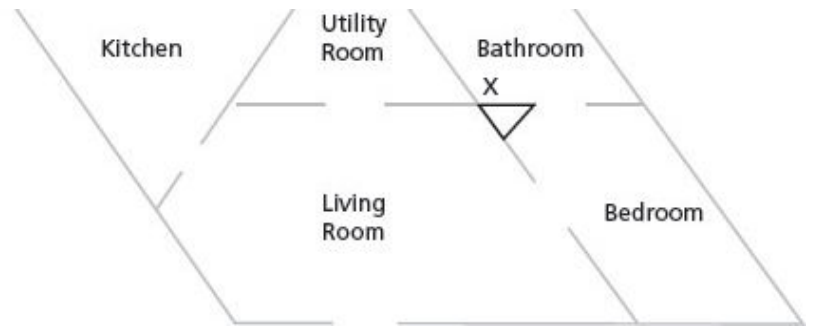
- B** Tina and Raul need to put down grass in the backyard. Find the area of the backyard. Show your work.

- C** If grass comes in rectangles that have an area of 8 square feet, how many rectangles do they need to buy? Find the total cost of the grass if each rectangle costs \$1.25 and sales tax is 8%. Show your work below.

3 Building



- A** Raul is going to build a small triangular table to place in the corner of the bedroom as shown on the blueprint. The angle of the corner is 60° . Raul wants the side against the bathroom wall to be $1\frac{1}{2}$ feet long and the front side facing the bedroom to be 2 feet long. Is this triangular table possible to build? Show your work.



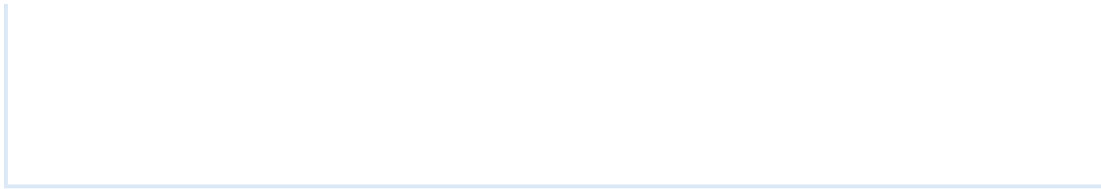
- B** In what other corner of the house could this table be placed? Mark it on the blue print and explain why it could fit there.

- C** Tina decides she wants the side of the table that faces the bedroom to be 1 foot in length. Is it possible for Raul to build this table? Show your work and explain your answer.

- D** If Raul wants to build a shelf to fit into the corner of the bathroom marked with an “x” on the blueprint, what would be the measure of the angle in the corner? Explain.

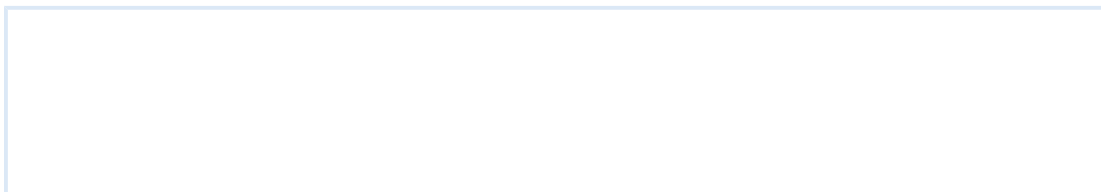
4 Gardening

- A** Raul finds some wooden planks of wood in the backyard with lengths 6 feet, 6.5 feet, and 8 feet. Tina decides she wants to make a triangular garden in the yard. Use geometry software to show whether these planks form a triangle for her to use as an outline for her garden.



- B** If Tina can form a triangle, will it only be one shape and size or can she make a different shape and size out of the planks?

- C** Raul also finds a block of wood in the shape of a cube with a 6-foot side length. He is going to use the wood to cut the top of a patio table. Could he cut a cross section of the block to form an equilateral triangle? What about a triangle that is not equilateral? Show your work below.



- D** If Raul cuts through all six faces of the cube, what is the resulting shape of the cross section?

- E** Name and draw 3 other possible cross sections that Raul could cut for his patio table top. Could Raul cut a circular cross section?

