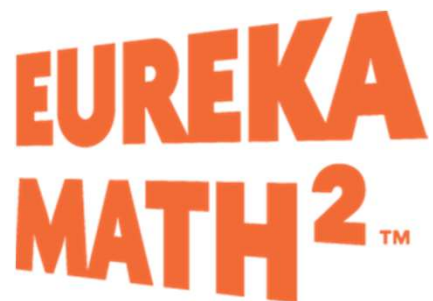




Module 5 - Lesson 14:

Solve real-world problems involving areas of composite figures with mixed-number side lengths.

CCSS Standard – 5.NF.B.6

FLUENCY (10-min)

Flip: Round

Round a number to the nearest **ONE** or **TENTH** to build fluency with rounding decimals.

INSTRUCTIONS:

- With a partner, take an envelope of rounding cards (pages 115 & 117 of LEARN book).
- Place all the cards in a pile facedown.
- Take turns flipping over a card. Both partners say the number aloud.
- Partner A says the number when **rounded to the nearest ONE**.
- Partner B says the number when **rounded to the nearest TENTH**.
- Switch place values for the next card. Continue until all cards are used.

0.53

Partners A and B: “53 hundredths”

Partner A: “0.53 rounded to the **nearest one** is 1.”

Partner B: “0.53 rounded to the **nearest tenth** is 0.5”

FLUENCY (10-min)

Flip: Round

Round a number to the nearest **ONE** or **TENTH**.

87.18	96.03	30.45
-------	-------	-------

Partners A and B: “eighty-seven and eighteen hundredths”

Partner A: “87.18 rounded to the **nearest one** is 87.”

Partner B: “87.18 rounded to the **nearest tenth** is 87.2”

Partners A and B: “ninety-six and three hundredths”

Partner A: “96.03 rounded to the **nearest one** is 96.”

Partner B: “96.03 rounded to the **nearest tenth** is 96”

Partners A and B: “thirty and forty-five hundredths”

Partner A: “30.45 rounded to the **nearest one** is 30.”

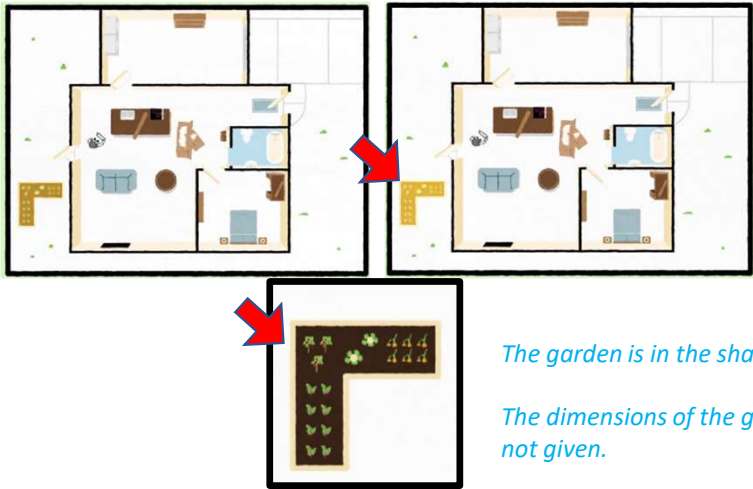
Partner B: “30.45 rounded to the **nearest tenth** is 30.5”

LAUNCH (5-min)

Examine a floor plan for a house.



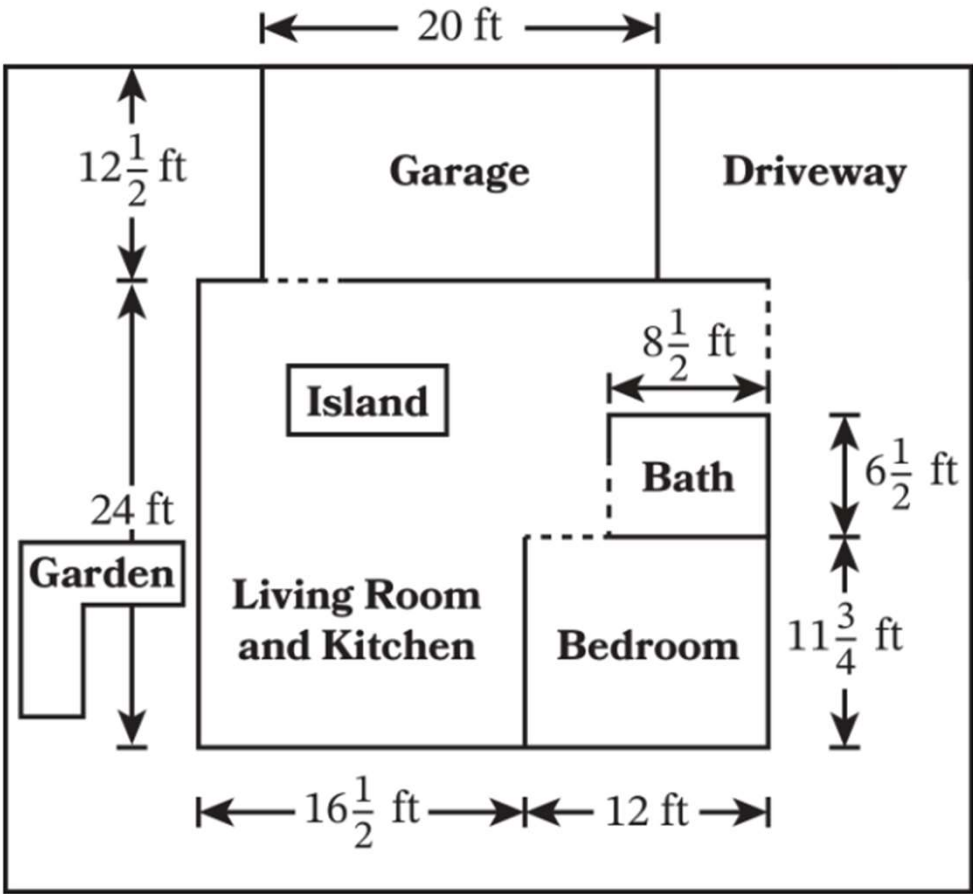
Video - Part 1:



The garden is in the shape of an L.
The dimensions of the garden are not given.

This is the same layout that we used in Lessons 8 & 9.
What do you notice or wonder about the garden?

In previous lessons, we worked with tetrominoes and areas of figures composed of tetrominoes. Because teterominoes are composed of squares, we can determine the area of any tetromino by determining the area of one of its squares and multiplying by 4. **But it is not easy to decompose all composite figures into squares.**



LAUNCH (5-min)

Examine a floor plan for a house.

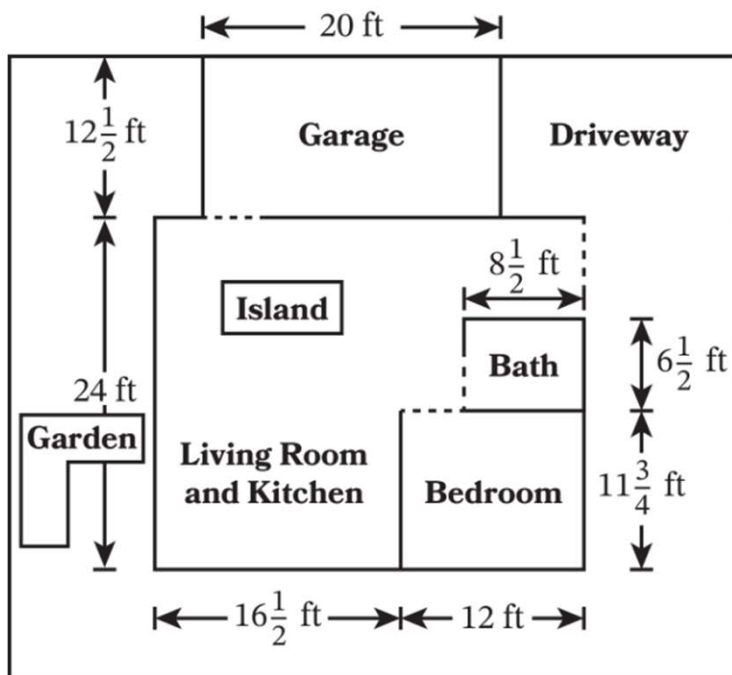


Video - Part 1:

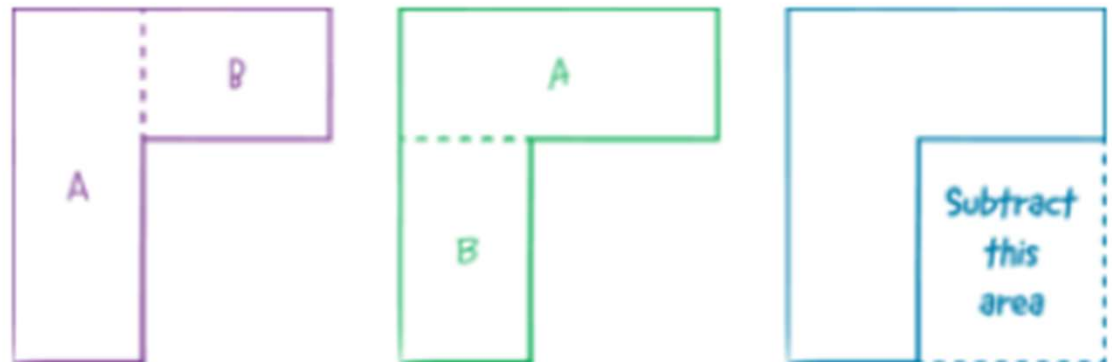


THINK-PAIR-SHARE:

What strategies could we use to find the area of the garden?



By drawing partition lines, we can look at the L-shaped garden as COMPOSED of smaller rectangles:



Once the sections are partitioned into rectangles, we can simply find the area of each rectangle separately and add them together for the total area.

LEARN (35-min)

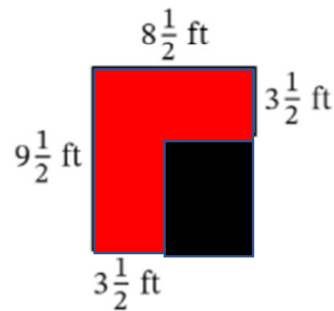
The Garden

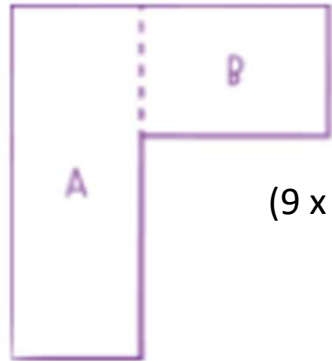
LEARN book page 119.

You can see this
composite figure in
several different ways.

Use the Read–Draw–Write process to solve the problem.

1. The drawing represents the vegetable garden behind the house. The owner of the house plans to cover the garden with a layer of compost. If compost costs \$2 for each square foot, how much will it cost to cover the garden with compost?



LEARN (35-min)**The Garden****Rectangle A:**

$$9\frac{1}{2} \times 3\frac{1}{2}$$

$$(9 + \frac{1}{2}) \times (3 + \frac{1}{2})$$

$$(9 \times 3) + (9 \times \frac{1}{2}) + (3 \times \frac{1}{2}) + (\frac{1}{2} \times \frac{1}{2})$$

$$27 + 9/2 + 3/2 + 1/4$$

$$27 + 6\frac{1}{4}$$

$$33\frac{1}{4}$$

Or we could multiply in
DECIMAL form:
 $9.5 \times 3.5 = 33.25$

Rectangle B:

$$5 \times 3\frac{1}{2}$$

$$5 \times (3 + \frac{1}{2})$$

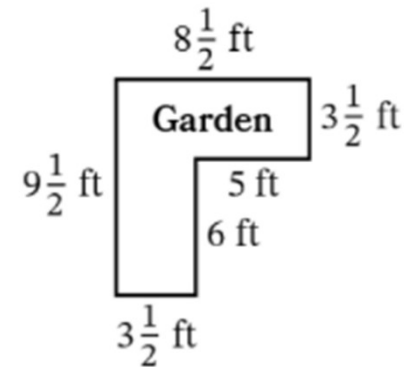
$$(5 \times 3) + (5 \times \frac{1}{2})$$

$$15 + 5/2$$

$$15 + 2\frac{1}{2}$$

$$17\frac{1}{2}$$

Or we could multiply in
DECIMAL form:
 $5 \times 3.5 = 17.5$



$$33.25 + 17.5 = 50.75$$

Rectangle A:

$$8\frac{1}{2} \times 3\frac{1}{2}$$

$$(8 + \frac{1}{2}) \times (3 + \frac{1}{2})$$

$$(8 \times 3) + (8 \times \frac{1}{2}) + (3 \times \frac{1}{2}) + (\frac{1}{2} \times \frac{1}{2})$$

$$24 + 8/2 + 3/2 + 1/4$$

$$24 + 5\frac{3}{4}$$

$$29\frac{3}{4}$$

Or we could multiply in
DECIMAL form:
 $8.5 \times 3.5 = 29.75$

Rectangle B:

$$6 \times 3\frac{1}{2}$$

$$6 \times (3 + \frac{1}{2})$$

$$(6 \times 3) + (6 \times \frac{1}{2})$$

$$18 + 6/2$$

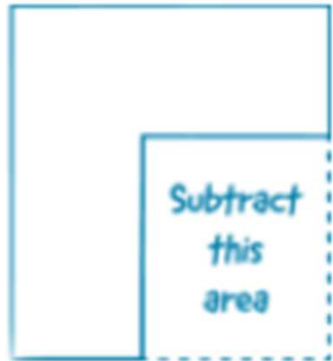
$$18 + 3$$

$$21$$

Or we could multiply in
DECIMAL form:
 $6 \times 3.5 = 21$

$$29.75 + 21 = 50.75$$

$$50\frac{3}{4} \text{ square feet}$$

LEARN (35-min)**The Garden**

Or we could multiply in
DECIMAL form:
 $9.5 \times 8.5 = 80.75$

Area of Large Rectangle

$$9 \frac{1}{2} \times 8 \frac{1}{2}$$

$$(9 + \frac{1}{2}) \times (8 + \frac{1}{2})$$

$$(9 \times 8) + (9 \times \frac{1}{2}) + (8 \times \frac{1}{2}) + (\frac{1}{2} \times \frac{1}{2})$$

$$72 + 9/2 + 8/2 + 1/4$$

$$72 + 8 \frac{3}{4}$$

$$80 \frac{3}{4}$$

-

$$30$$

=

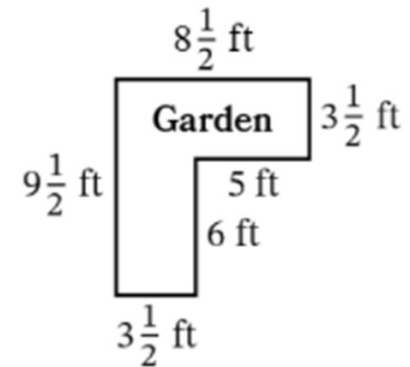
$$50 \frac{3}{4} \text{ square feet}$$

Area of Small Rectangle

$$6 \text{ ft} \times 5 \text{ ft}$$

$$30 \text{ feet}$$

$$80.75 - 30.00 = 50.75$$



Up to this point we have found the total AREA of the L-shaped garden.
Now we can move on to the second part of the word problem:

Or we could multiply in
DECIMAL form:
 $50.75 \times 2 = 101.50$

$$\text{\$}2 \times 50 \frac{3}{4}$$

$$(2 \times 50) + (2 \times \frac{3}{4})$$

$$100 + 6/4$$

$$100 + 1 \frac{1}{2}$$

$$101 \frac{1}{2}$$

$$\text{\$}101.50$$

Use the Read–Draw–Write process to solve the problem.

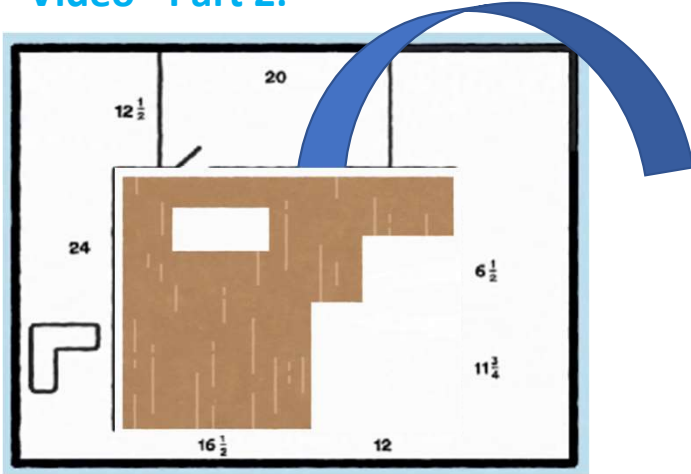
- The drawing represents the vegetable garden behind the house. The owner of the house plans to cover the garden with a layer of compost. If compost costs \$2 for each square foot, how much will it cost to cover the garden with compost?

You ALWAYS have the option to solve by using fractions or decimals.

LEARN (35-min)

The House

Video - Part 2:



LEARN book page 288.

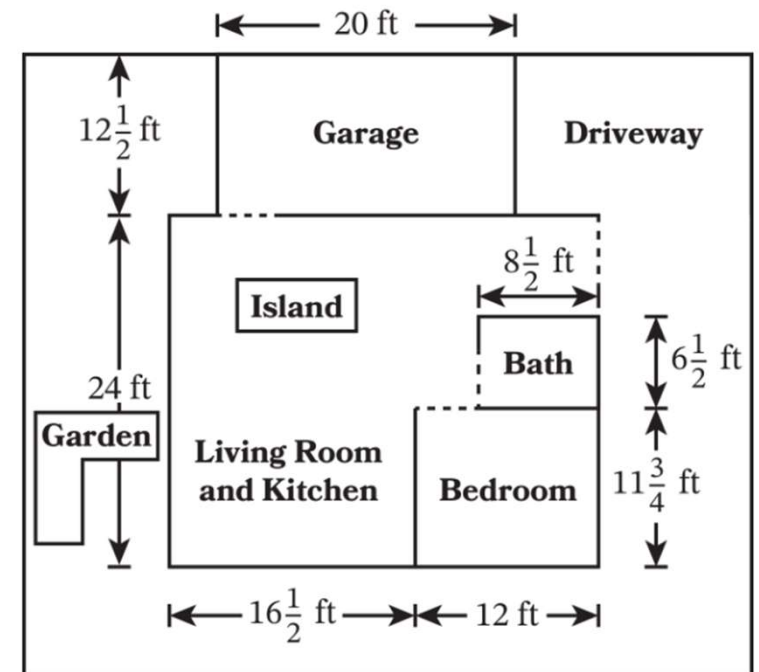
The floor of the bedroom, the bathroom, and the garage will not be covered with flooring.

The rest of the house will be covered by rolled flooring.

The island in the kitchen measure 3 feet by 7 feet. Flooring will not be put under the island.

With a partner, your task is to determine **how many square feet of rolled flooring** does the owner need for the Living Room and Kitchen area?

HINT: Using the floorplan, determine the dimensions of the Living Room and Kitchen area.



LEARN (35-min)

The House.



Let's figure the area of the red square
(including the bedroom, bath and island)

Red Rectangle:

$$24 \times (16 \frac{1}{2} + 12)$$

$$24 \times 28 \frac{1}{2}$$

$$(24 \times 28) + (24 \times \frac{1}{2})$$

$$672 + 12$$

684 square feet

Or we could multiply in
DECIMAL form:
 $24 \times 28.5 = 684$

Bedroom:

$$12 \times 11 \frac{3}{4}$$

$$(12 \times 11) + (12 \times \frac{3}{4})$$

$$132 + 9$$

141 square feet

Or we could multiply in
DECIMAL form:
 $12 \times 11.75 = 141$

Bath:

$$8 \frac{1}{2} \times 6 \frac{1}{2}$$

$$(8 \times 6) + (8 \times \frac{1}{2}) + (6 \times \frac{1}{2}) + (\frac{1}{2} \times \frac{1}{2})$$

$$48 + 8/2 + 6/2 + \frac{1}{4}$$

$$48 + 4 + 3 + \frac{1}{4}$$

55 $\frac{1}{4}$ square feet

Or we could multiply in
DECIMAL form:
 $8.5 \times 6.5 = 55.25$

Island:

$$3 \times 7$$

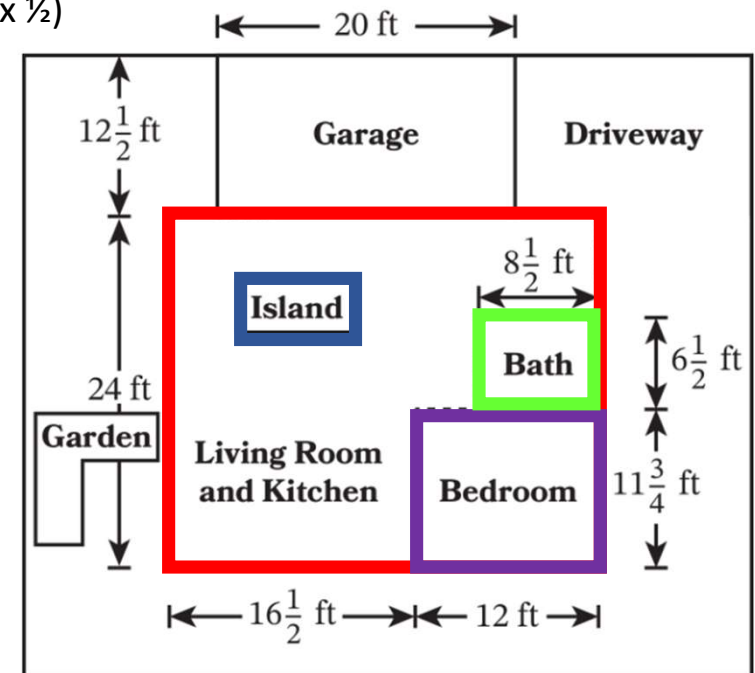
21 square feet

Now, we must subtract the bedroom, bath and island from the Living Room and Kitchen area:

$$684 - 141 - 55 \frac{1}{4} - 21$$

$$684 - 141 - 55.25 - 21$$

466 $\frac{3}{4}$ or 466.75
square feet



LEARN book page 121.

Figure	Expression
	$\left(8\frac{1}{2} \times 3\right) + \left(5 \times 4\frac{1}{2}\right)$
	$\left(8 \times 8\frac{1}{2}\right) - \left(5 \times 4\right)$
	$\left(4\frac{1}{2} \times 8\right) + \left(4 \times 3\right)$

LAND (10-min)

Exit Ticket

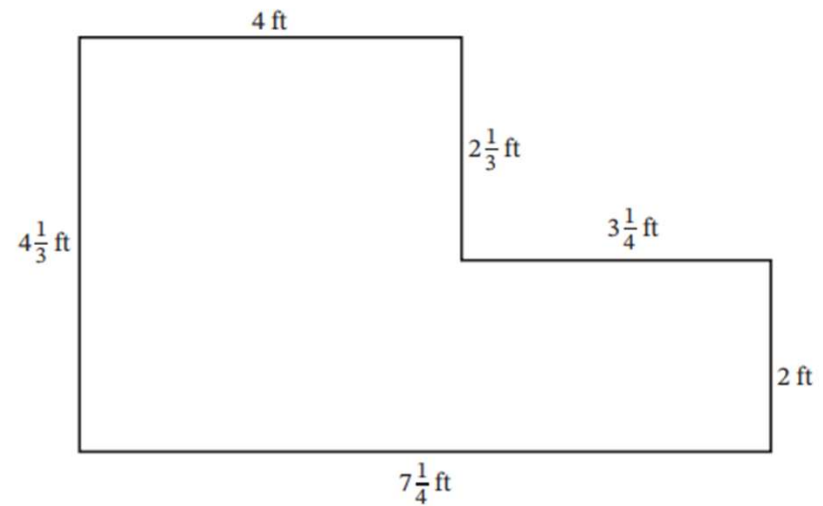


14

Name _____

Date _____

How many square feet of tile are needed to cover the floor shown?



Exit Ticket – PAGE 125

Small Group Time:

Problem Set Pages 121 - 123

Homework:

Page 89 APPLY BOOK