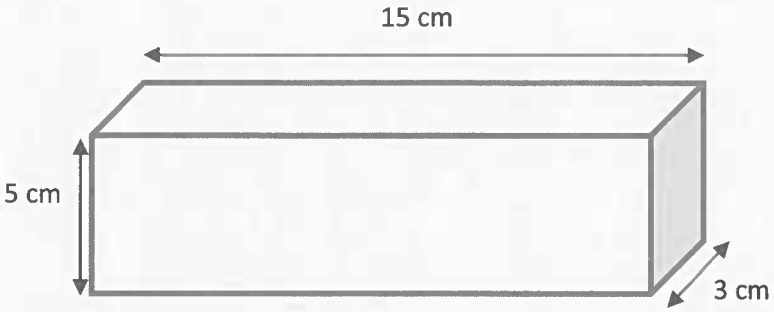
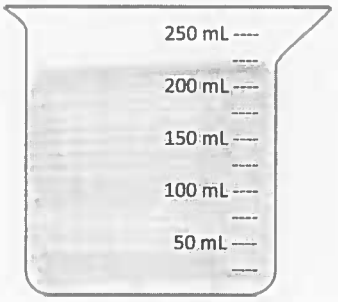
Name _____ Date _____





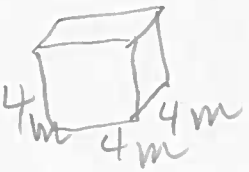
a. Find the volume of the prism.

$V = 15\text{cm} \times 5\text{cm} \times 3\text{cm} = 75 \times 3 = 225\ \text{cm}^3$

b. Shade the beaker to show how much liquid would fill the box.

A storage company advertises three different choices for all your storage needs: "The Cube," a true cube with a volume of 64 m^3; "The Double" (double the volume of "The Cube"); and "The Half" (half the volume of "The Cube"). What could be the dimensions of the three storage units? How might they be oriented to cover the most floor space? The most height?

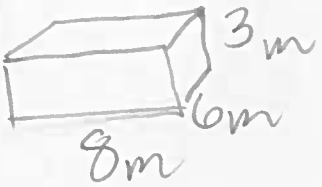
Cube $64m^3 = 4m \times 4m \times 4m$



Double $128m^3 = 128 \div 8 = 16 \times 6m$

$16 \div 6 = 3$

$8m \times 6m \times 3m$



Half $32m^2 = 32 \div 4 = 8$

$8 \div 4 = 2$

$4m \times 4m \times 2m$

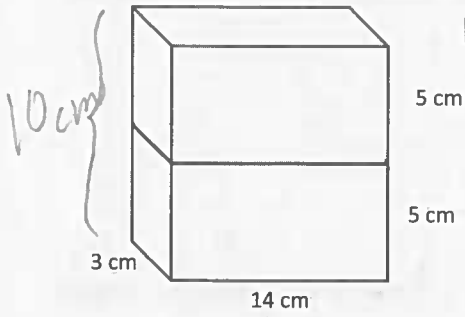
The cube has the same length, width, and height I calculate the dimensions of the double and the half by dividing by a random number, and then dividing again.

Read **Draw** **Write**

Name _____ Date _____

1. Find the total volume of the figures, and record your solution strategy.

a.

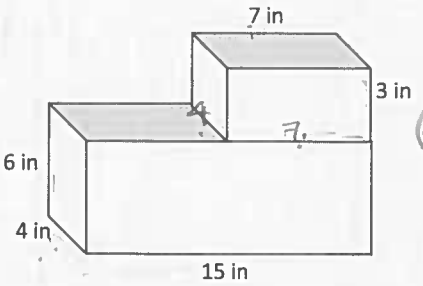


V = l × w × h
14 × 3 × 10
420 cm³

Volume: 420 cm³

Solution Strategy:

b.



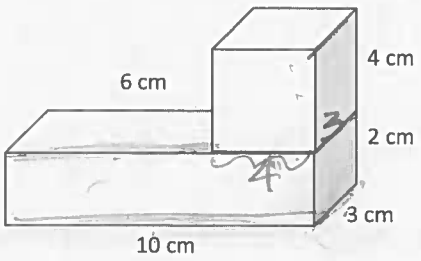
(15 × 4) × 6 =
60 × 6 = 360
(7 × 4) × 3 =
28 × 3 = 84
360 + 84 = 444

Volume: 444 in³

Solution Strategy:

c.

10 × 3 × 2 = 60 cm³
(4 × 4) × 3 = 48 cm³

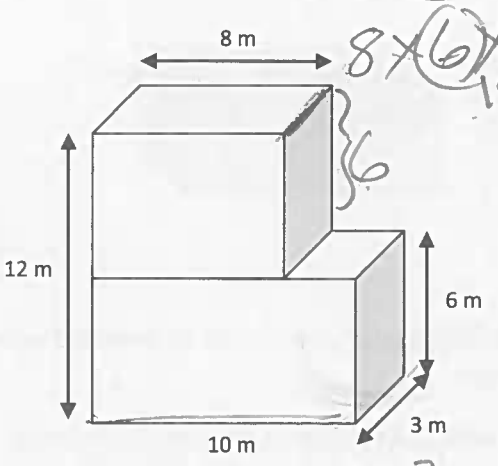


Volume: 108 cm³

Solution Strategy:

d.

10 × 3 × 6 = 180
8 × 6 × 3 = 144
180 + 144 = 324



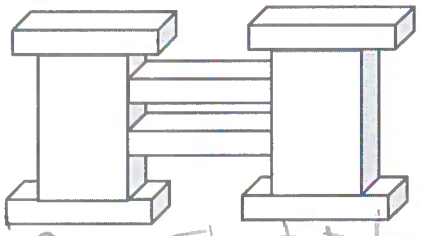
Volume: 324 m³

Solution Strategy:

2. A sculpture (pictured below) is made of two sizes of rectangular prisms. One size measures 13 in by 8 in by 2 in. The other size measures 9 in by 8 in by 18 in. What is the total volume of the sculpture?

$13 \times 8 \times 2 =$
$26 \times 8 =$
$208 in^3$

$9 \times 8 \times 18 =$
$9 \times 144 =$
$1296 in^3$



$208 \times 6 = 1,248$

$1,296 \times 2 =$
$2,592$

$1,248 + 2,592 = 3,840$

The total volume is $3,840 in^3$

3. The combined volume of two identical cubes is 128 cubic centimeters. What is the side length of each cube?

1st $128 \div 2 = 64$

$128 = 64 \cdot 64$

$64 cm^3 = 4 cm \times 4 cm \times 4 cm$

4. A rectangular tank with a base area of 24 cm^2 is filled with water and oil to a depth of 9 cm. The oil and water separate into two layers when the oil rises to the top. If the thickness of the oil layer is 4 cm, what is the volume of the water?

oil: $24 cm^2 \times 4 cm = 96 cm^3$
water: $24 cm^2 \times 5 cm = 120 cm^3$

The volume of the water is $120 cm^3$

5. Two rectangular prisms have a combined volume of 432 cubic feet. Prism A has half the volume of Prism B.

a. What is the volume of Prism A? Prism B?

144 | 288 = 432 (A | B)

Prism A is $144 ft^3$, Prism B is $288 ft^3$

$144 \times 3 = 432$

b. If Prism A has a base area of 24 ft^2, what is the height of Prism A?

$144 \div 24 = 6$ The height is 6 ft.

c. If Prism B's base is $\frac{2}{3}$ the area of Prism A's base, what is the height of Prism B?

$24 \times \frac{2}{3} = \frac{48}{3} = 16 ft$

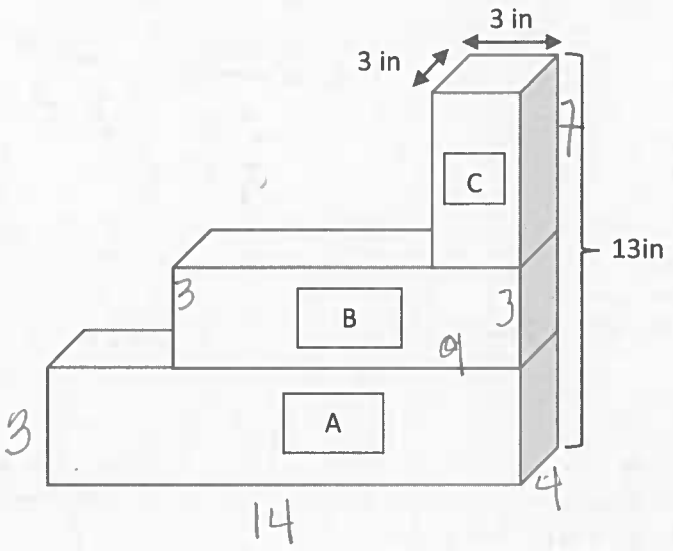
$288 \div 16 = 18 ft$

$16 \times 18 = 288$

$24 \times 6 = 144$

Name _____ Date _____

The image below represents three planters that are filled with soil. Find the total volume of soil in the three planters. Planter A is 14 inches by 3 inches by 4 inches. Planter B is 9 inches by 3 inches by 3 inches.



$A = 14 \times 3 \times 3 =$
$14 \times 9 =$
126 in^3

$B = 9 \times 3 \times 3$
$9 \times 9 =$
81 in^3

$C = 7 \times 3 \times 3$
7×9
63 in^3

$126 + 8 + 63 = 197 \text{ in}^3$

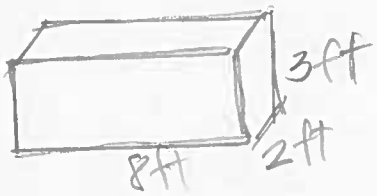
$$\begin{array}{r} {\scriptstyle 1} \\ 126 \\ +\ 63 \\ \hline 197 \end{array}$$

The total volume is 197 in^3

Name _____ Date _____

Geoffrey builds rectangular planters.

1. Geoffrey's first planter is 8 feet long and 2 feet wide. The container is filled with soil to a height of 3 feet in the planter. What is the volume of soil in the planter? Explain your work using a diagram.

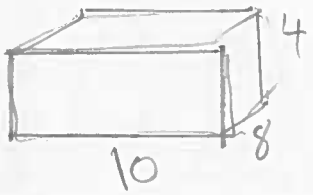


$8 \times (2 \times 3) = 48 \text{ ft}^3$

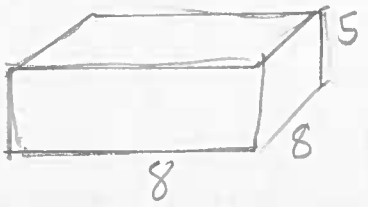
2. Geoffrey wants to grow some tomatoes in four large planters. He wants each planter to have a volume of 320 cubic feet, but he wants them all to be different. Show four different ways Geoffrey can make these planters, and draw diagrams with the planters' measurements on them.

$320 \div 4 = 80$
$4 \times 8 \times 10$

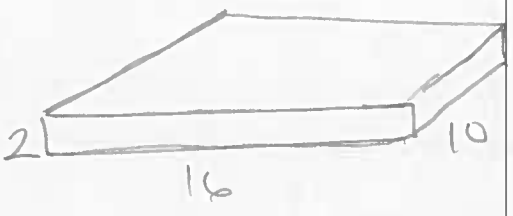
Planter A $4 \times 8 \times 10$



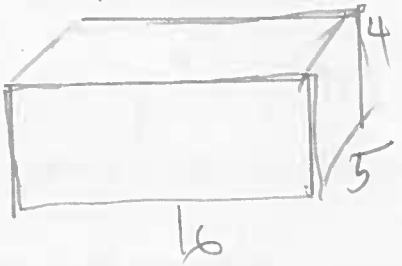
Planter B $8 \times 8 \times 5$



Planter C $2 \times 16 \times 10$



Planter D $4 \times 16 \times 5$



3. Geoffrey wants to make one planter that extends from the ground to just below his back window. The window starts 3 feet off the ground. If he wants the planter to hold 36 cubic feet of soil, name one way he could build the planter so it is not taller than 3 feet. Explain how you know.

36

3

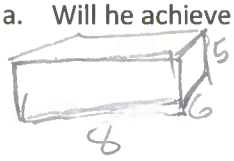
$36 \div 3 = 12$

$3 \times 6 \times 2$

$3 \times 6 \times 2$ is 36. That is the planter's volume.

4. After all of this gardening work, Geoffrey decides he needs a new shed to replace the old one. His current shed is a rectangular prism that measures 6 feet long by 5 feet wide by 8 feet high. He realizes he needs a shed with 480 cubic feet of storage.

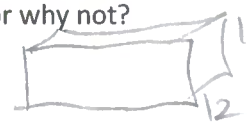
   a. Will he achieve his goal if he doubles each dimension? Why or why not?



$8 \times (6 \times 5) =$

30

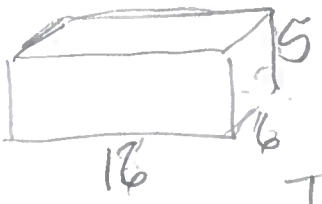
$8 \times 30 = 240 ft^3$



160
×12
320
160
1,920

Doubling all measurements increase the volume 8 time

   b. If he wants to keep the height the same, what could the other dimensions be for him to get the volume he wants?



$16 \times 6 \times 5$

$16 \times 30 = 480$

The other dimensions should be 16 and 6

   c. If he uses the dimensions in part (b), what could be the area of the new shed's floor?

l = 16

w = 6

The area would be 96 ft2

Name _____ Date _____

A storage shed is a rectangular prism and has dimensions of 6 meters by 5 meters by 12 meters. If Jean were to double these dimensions, she believes she would only double the volume. Is she correct? Explain why or why not. Include a drawing in your explanation.

$6 \times 5 \times 12 = 360 m^3$

$12 \times 10 \times 24 =$
$12 \times 240 = 2,880$

8
360 | 2880
288
0

240
× 12
480
240
2880

Jean is not correct.
2,880 is eight times more than 360

Name _____ Date _____

Using the box patterns, construct a sculpture containing at least 5, but not more than 7, rectangular prisms that meets the following requirements in the table below.

1.	My sculpture has 5 to 7 rectangular prisms. Number of prisms: 5	
2.	Each prism is labeled with a letter, dimensions, and volume.	
	Prism A 10 cm by 7 cm by 4 cm Volume = 280 cm^3 Prism B 5 cm by 5 cm by 6 cm Volume = 150 cm^3 Prism C 6 cm by 3 cm by 5 cm Volume = 90 cm^3 Prism D 10 cm by 7 cm by 2 cm Volume = 140 cm^3 Prism E 5 cm by 5 cm by 2 cm Volume = 50 cm^3 Prism __ _____ by _____ by _____ Volume = _____ Prism __ _____ by _____ by _____ Volume = _____	
3.	Prism D has $\frac{1}{2}$ the volume of Prism A.	Prism D Volume = 140 cm^3 Prism A Volume = 280 cm^3
4.	Prism E has $\frac{1}{3}$ the volume of Prism B.	Prism E Volume = 50 cm^3 Prism B Volume = 150 cm^3
5.	The total volume of all the prisms is 1,000 cubic centimeters or less. Yes	Total volume: 710 cm^3 Show calculations:

280
150
140
50
40
710

Name _____ Date _____

Sketch a rectangular prism that has a volume of 36 cubic cm. Label the dimensions of each side on the prism. Fill in the blanks that follow.

$36 \div 6 = 6$

$6 \div 3 = 2$

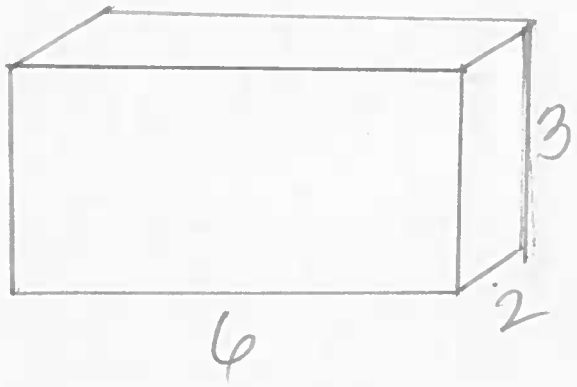
$l = 6 \quad w = 2 \quad h = 3$

Height: 3 cm

Length: 6 cm

Width: 2 cm

Volume: 36 cubic cm



The chart below shows the dimensions of various rectangular packing boxes. If possible, answer the following without calculating the volume.

Box Type	Dimensions (l × w × h)
Book Box	12 in × 12 in × 12 in
Picture Box	36 in × 12 in × 36 in
Lamp Box	12 in × 9 in × 48 in
The Flat	12 in × 6 in × 24 in

144 × 12 = 288, 144 = 1,728

3, 36 × 36 = 216, 108, 1,296

11, 1296 × 12 = 2592, 1296 = 15552

144 × 12 = 288, 144 = 1,728

432 × 12 = 864, 432 = 5,184

a. Which box will provide the greatest volume?

The picture box has the greatest volume

Read **Draw** **Write**

b. Which box has a volume that is equal to the volume of the book box? How do you know?

I multiply 12×12 and got 144
When I multiply 6×24 I also got 144.

The flat box has a volume equal to the book box.

c. Which box is $\frac{1}{3}$ the volume of the lamp box?

The flat is.

If I divide 5,184÷3 I get 1728

$$
\begin{array}{r}
1728 \\
3\overline{)5184} \\
3 \\
\hline
21 \\
21 \\
\hline
08 \\
6 \\
\hline
24 \\
24 \\
\hline
0
\end{array}
$$

Read **Draw** **Write**

Name _____ Date _____

A student designed this sculpture. Using the dimensions on the sculpture, find the dimensions of each rectangular prism. Then, calculate the volume of each prism.

a. Rectangular Prism Y

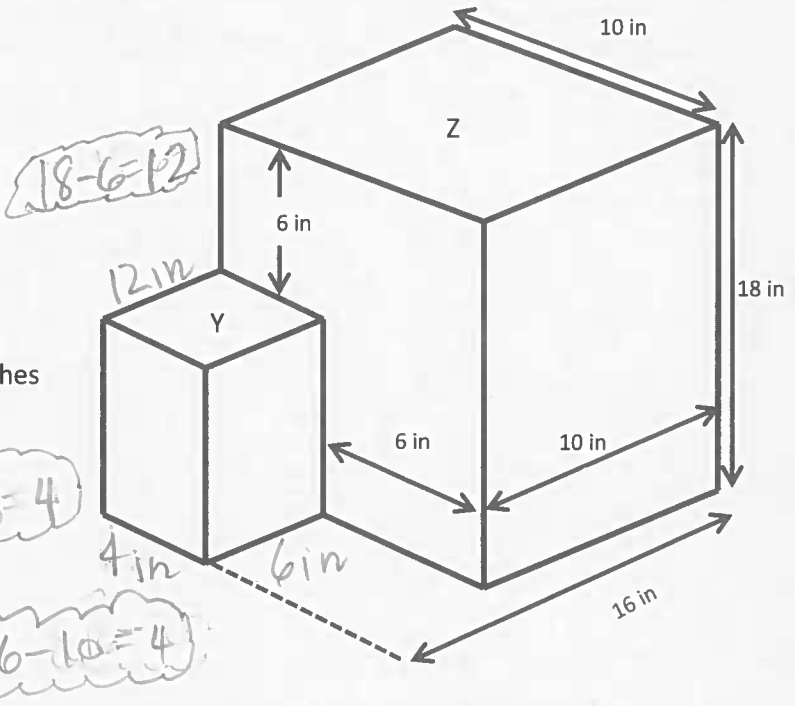
Height: 12 inches

Length: 6 inches

Width: 4 inches

Volume: 288 cubic inches

12 x 6 x 4 =
72 x 4 =
288



18 - 6 = 12

10 - 6 = 4

16 - 10 = 4

b. Rectangular Prism Z

Height: 18 inches

Length: 10 inches

Width: 10 inches

Volume: 1,800 cubic inches

18 x 10 x 10

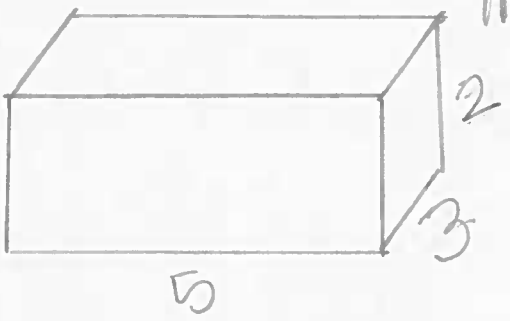
c. Find the total volume of the sculpture. Label the answer.

The volume of both figures is 2,088 in^3

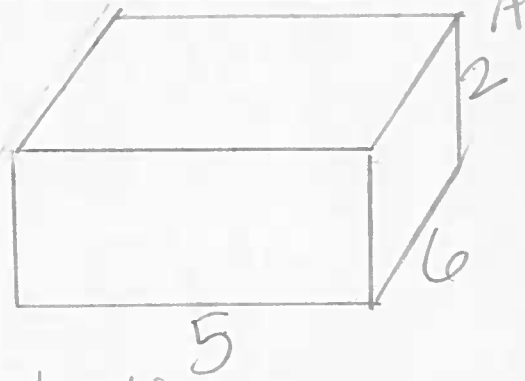
1,800
+ 288
2,088

Heidi and Andrew designed two raised flowerbeds for their garden. Heidi's flowerbed was 5 feet long by 3 feet wide, and Andrew's flowerbed was the same length but twice as wide. Calculate how many cubic feet of soil they need to buy to have soil to a depth of 2 feet in both flowerbeds.

Heidy's



Andrew's



L=5ft
w=3ft
h=2ft

l=5ft
w=6ft
h=2ft

5x3x2=
15x2=30ft3

5x6x2=60ft3

30+60=90

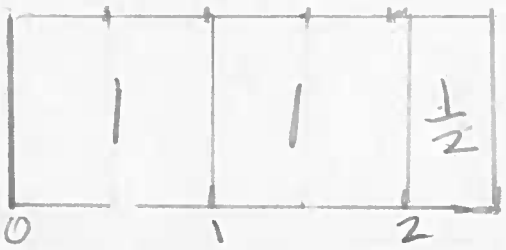
They need to by 90 ft3 of sod for both flowerbeds

Read Draw Write

Name _____ Date _____

Sketch the rectangles and your tiling. Write the dimensions and the units you counted in the blanks. Then, use multiplication to confirm the area. Show your work. We will do Rectangles A and B together.

1. **Rectangle A:**

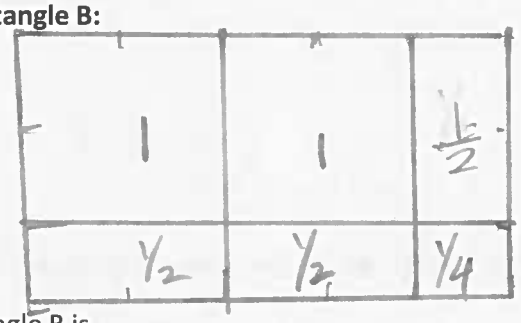


Rectangle A is

2 1/2 units long 1 units wide

Area = 2 1/2 units²

2. **Rectangle B:**

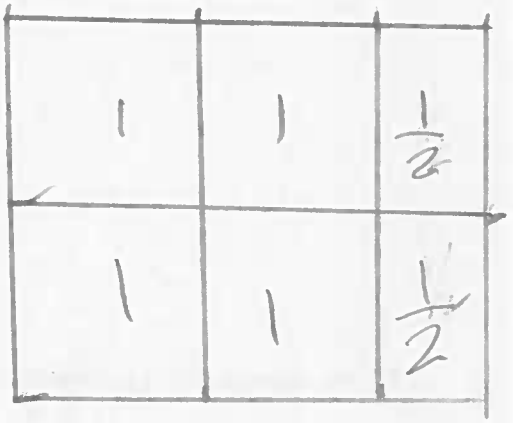


Rectangle B is

2 1/2 units long 1 1/2 units wide

Area = 3 3/4 units²

3. **Rectangle C:**

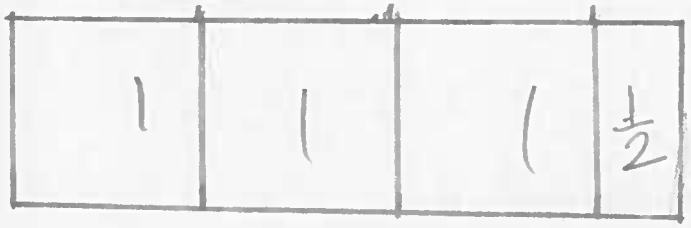


Rectangle C is

2 1/2 units long 2 units wide

Area = 5 units²

4. **Rectangle D:**

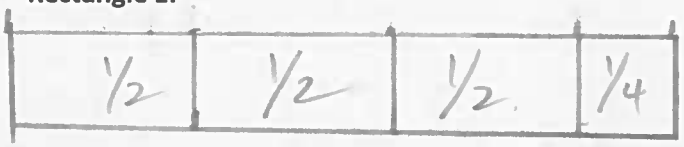


Rectangle D is

3 1/2 units long 1 units wide

Area = 3 1/2 units²

5. **Rectangle E:**

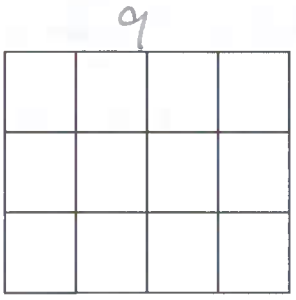


Rectangle E is

3 1/2 units long 1/2 units wide

Area = 1 3/4 units²

6. The rectangle to the right is composed of squares that measure $2\frac{1}{4}$ inches on each side. What is its area in square inches? Explain your thinking using pictures and numbers.



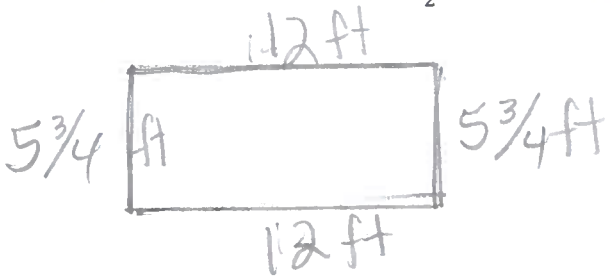
$9 \times 6\frac{3}{4} =$

$54 + \frac{27}{4} = 54 + 6\frac{3}{4} = 60\frac{3}{4}$

$2\frac{1}{4} \times 4 = 8 + \frac{4}{4} = 9$

$2\frac{1}{4} \times 3 = 6\frac{3}{4} = 6\frac{3}{4}$

7. A rectangle has a perimeter of $35\frac{1}{2}$ feet. If the length is 12 feet, what is the area of the rectangle?



$12 + 12 = 24$ ft

$35\frac{1}{2} - 24 = 11\frac{1}{2}$

$11\frac{1}{2} \div 2 =$

$\frac{23}{2} \div 2 = \frac{23}{2} \times \frac{1}{2} = \frac{23}{4} =$

$5\frac{3}{4}$ ft

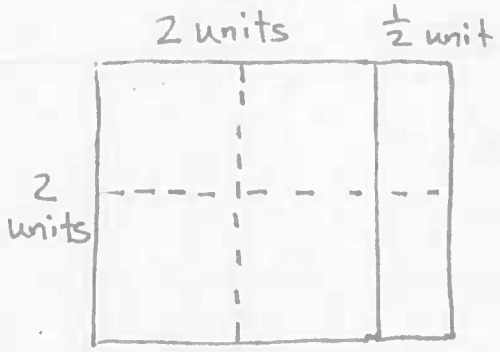
(9)

$A = 12 \times 5\frac{3}{4} = 60 + \frac{36}{4} = 69$

$A = 69 \text{ ft}^2$

Name _____ Date _____

Emma tiled a rectangle and then sketched her work. Fill in the missing information, and multiply to find the area.



Emma's Rectangle:

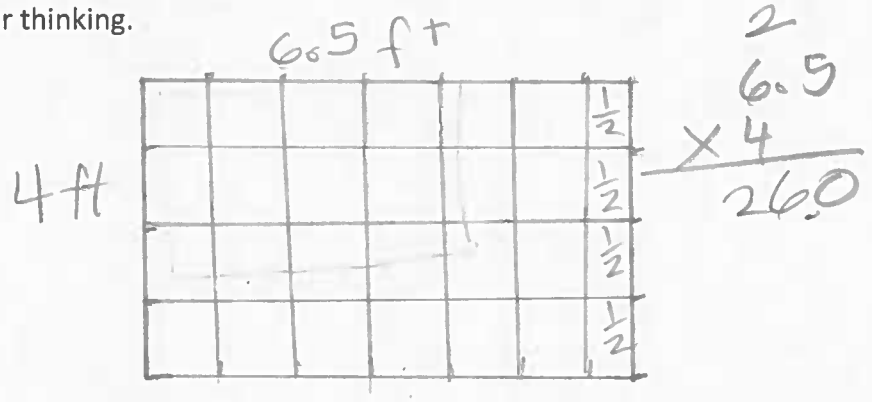
2 ½ units long 2 units wide

Area = 5 units^2

$2 \times 2\frac{1}{2} =$

$4 + \frac{2}{2} = 5$

Mrs. Golden wants to cover her 6.5-foot by 4-foot bulletin board with silver paper that comes in 1-foot squares. How many squares does Mrs. Golden need to cover her bulletin board? Will there be any fractional pieces of silver paper left over? Explain why or why not. Draw a sketch to show your thinking.



2
6.5
× 4
26.0

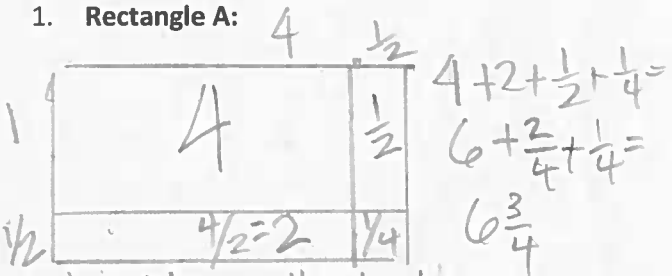
Mrs Golden needs 26 squares. She does not need fractional pieces left over because two of them will be cut in halves. There is no need for more.

Read **Draw** **Write**

Name _____ Date _____

Draw the rectangle and your tiling.
Write the dimensions and the units you counted in the blanks.
Then, use multiplication to confirm the area. Show your work.

1. **Rectangle A:**



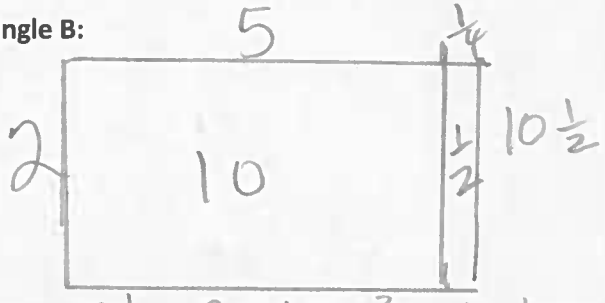
$4\frac{1}{2} \times 1\frac{1}{2} = 4 + \frac{4}{2} + \frac{1}{2} + \frac{1}{4} = 6\frac{3}{4}$

Rectangle A is

$4\frac{1}{2}$ units long $1\frac{1}{2}$ units wide

Area = $6\frac{3}{4}$ units^2

2. **Rectangle B:**



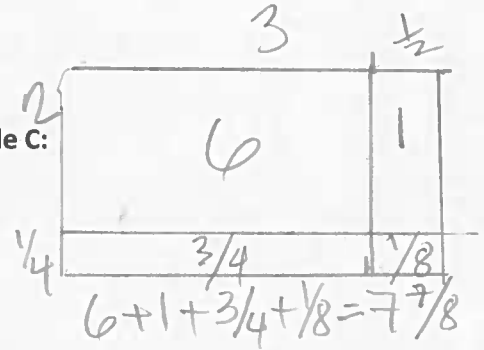
$5\frac{1}{4} \times 2 = 10 + \frac{2}{4} = 10\frac{1}{2}$

Rectangle B is

$5\frac{1}{4}$ units long 2 units wide

Area = $10\frac{1}{4}$ units^2

3. **Rectangle C:**



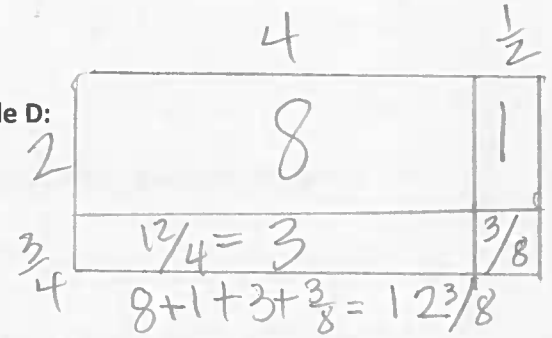
$3\frac{1}{2} \times 2\frac{1}{4} = 6 + \frac{3}{4} + \frac{2}{2} + \frac{1}{8} = 7\frac{7}{8}$

Rectangle C is

$3\frac{1}{2}$ units long $2\frac{1}{4}$ units wide

Area = $7\frac{7}{8}$ units^2

4. **Rectangle D:**



Rectangle D is $4\frac{1}{2} \times 2\frac{3}{4} = 8 + \frac{12}{4} + \frac{2}{2} + \frac{3}{8} = 12\frac{3}{8}$

$4\frac{1}{2}$ units long $2\frac{3}{4}$ units wide

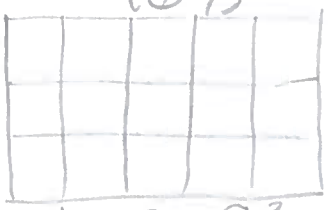
Area = $12\frac{3}{4}$ units^2

5. Colleen and Caroline each built a rectangle out of square tiles placed in 3 rows of 5. Colleen used tiles that measured $1\frac{2}{3}$ cm in length. Caroline used tiles that measured $3\frac{1}{3}$ cm in length.

a. Draw the girls' rectangles, and label the lengths and widths of each.

8 1/3

16 2/3



$1\frac{2}{3} \times 3 = 3\frac{6}{3} = 5$

$1\frac{2}{3} \times 5 = 5\frac{10}{3} = 8\frac{1}{3}$

$3\frac{1}{3} \times 3 = 9\frac{3}{3} = 10$

$3\frac{1}{3} \times 5 = 15\frac{5}{3} = 16\frac{2}{3}$

b. What are the areas of the rectangles in square centimeters?

A = $8\frac{1}{3} \times 5$

A = $40\frac{5}{3} = 41\frac{2}{3}$ cm^2

B $16\frac{2}{3} \times 10$

B $160\frac{20}{3} = 166\frac{2}{3}$ cm^2

c. Compare the areas of the rectangles.

Caroline's rectangle is 4 times bigger than Colleen's

6. A square has a perimeter of 51 inches. What is the area of the square?

$51 \div 4 = 12\frac{3}{4}$ (9) (9)

$A = 12\frac{3}{4} \times 12\frac{3}{4} = 144 + \frac{36}{4} + \frac{36}{4} + \frac{9}{16}$

$A = 162\frac{9}{16}$

Area is $162\frac{9}{16}$ in^2

$4 \overline{)51}$ $12\frac{3}{4}$

4

11

8

3

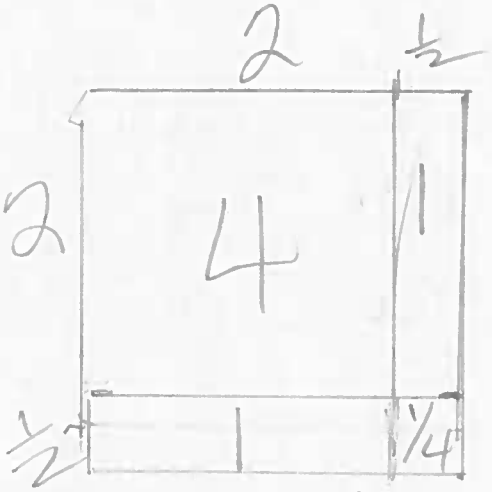
Name _____ Date _____

To find the area, Andrea tiled a rectangle and sketched her answer. Sketch Andrea's rectangle, and find the area. Show your multiplication work.

Rectangle is

$2\frac{1}{2}$ units × $2\frac{1}{2}$ units

Area = _____



$4+1+1+\frac{1}{4}=$

$6\frac{1}{4}$ square units

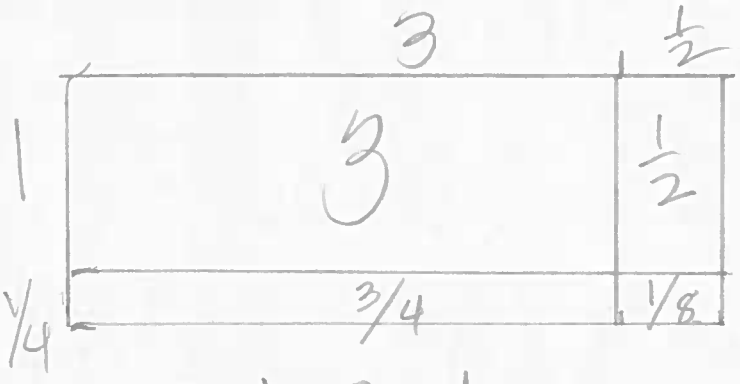
$2\frac{1}{2} \times 2\frac{1}{2} =$

$4+\frac{2}{2}+\frac{2}{2}+\frac{1}{4}=$

$4+1+\frac{1}{4}=$

$5\frac{1}{4}$ square units

Margo is designing a label. The dimensions of the label are $3\frac{1}{2}$ inches by $1\frac{1}{4}$ inches. What is the area of the label?



$3\frac{1}{2} \times 1\frac{1}{4} = 3 + \frac{3}{4} + \frac{1}{2} + \frac{1}{8} =$

$3 + \frac{6}{8} + \frac{4}{8} + \frac{1}{8} =$

$3 + \frac{11}{8} = 4\frac{3}{8}\ in^2$

$3 + \frac{1}{2} + \frac{3}{4} + \frac{1}{8} =$

$3 + \frac{4}{8} + \frac{6}{8} + \frac{1}{8} =$

$3 + \frac{11}{8} = 4\frac{3}{8}\ in^2$

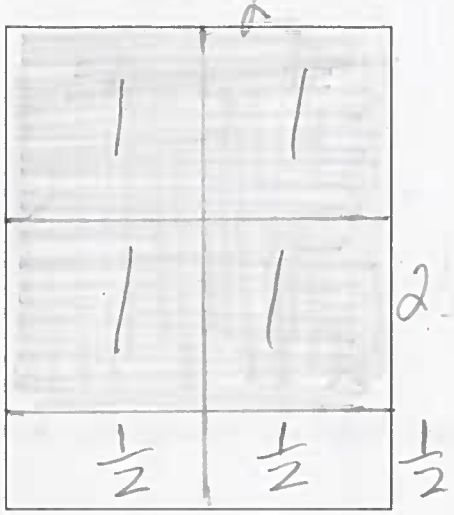
The area of the label is $4\frac{3}{8}\ in^2$

Read **Draw** **Write**

Name _____ Date _____

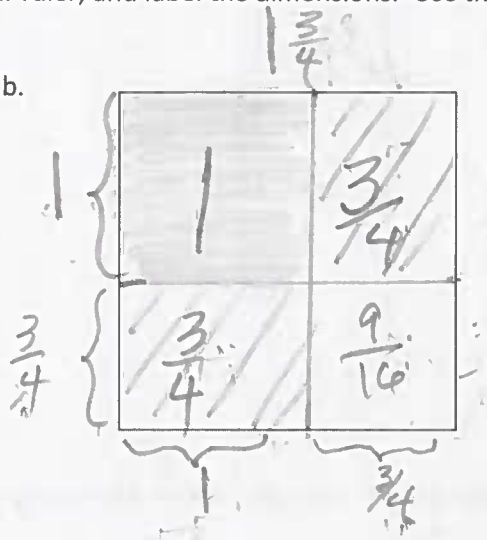
1. Measure each rectangle to the nearest $\frac{1}{4}$ inch with your ruler, and label the dimensions. Use the area model to find each area.

a.



$4+1=5\ in^2$

b.



$1+\frac{3}{4}+\frac{3}{4}+\frac{9}{16}=$

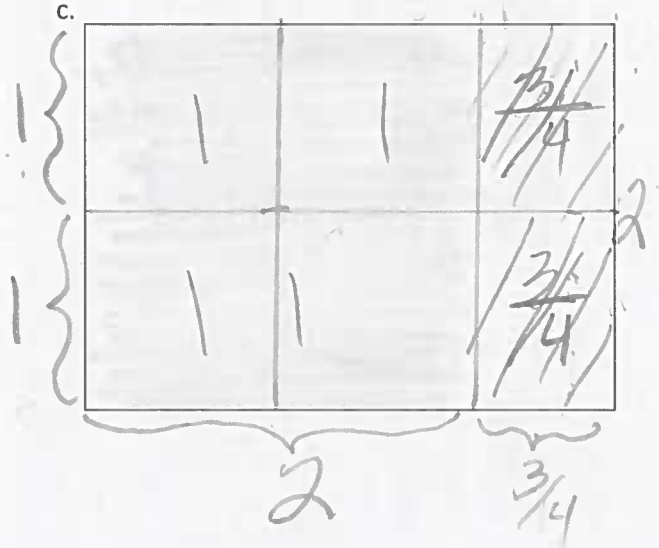
$1+\frac{6}{4}+\frac{9}{16}=$

$2+\frac{1}{2}+\frac{9}{16}=$

$2+\frac{8}{16}+\frac{9}{16}=$

$3\frac{1}{16}\ in^2$

c.

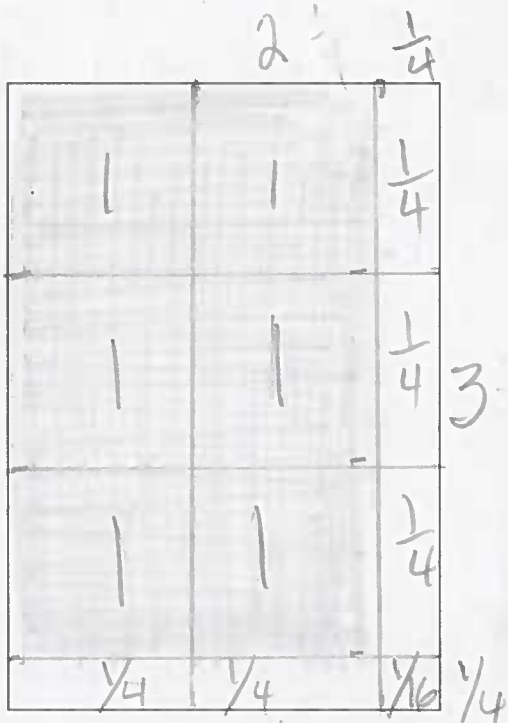


$4+\frac{3}{4}+\frac{3}{4}=$

$4+\frac{6}{4}=5\frac{2}{4}=$

$5\frac{1}{2}\ in^2$

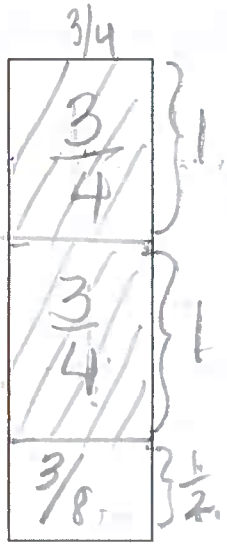
d.



$6+\frac{5}{4}+\frac{1}{16}=7+\frac{1}{4}+\frac{1}{16}=$

$7+\frac{4}{16}+\frac{1}{16}=7\frac{5}{16}\ in^2$

e.

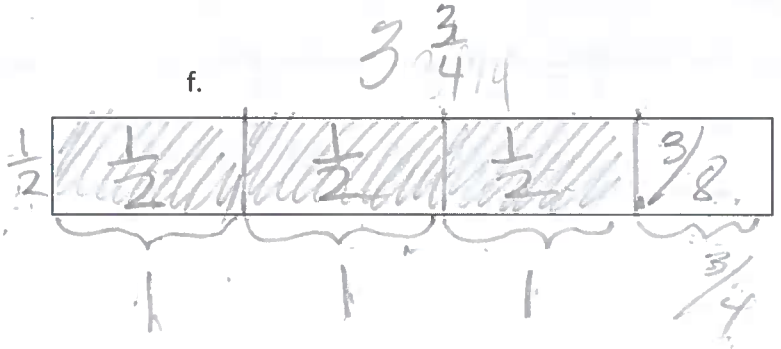


$\frac{3}{4}+\frac{3}{4}+\frac{3}{8}=$

$\frac{6}{8}+\frac{6}{8}+\frac{3}{8}=$

$\frac{15}{8}=1\frac{7}{8}\text{ in}^2$

f.



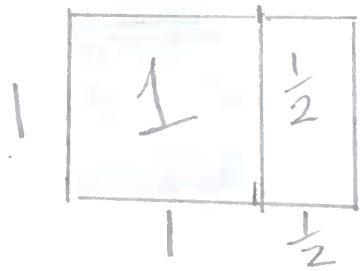
$3\frac{3}{4}$

$\frac{3}{2}+\frac{3}{8}=1\frac{1}{2}+\frac{3}{8}=1\frac{4}{8}+\frac{3}{8}=$

$1\frac{7}{8}\text{ in}^2$

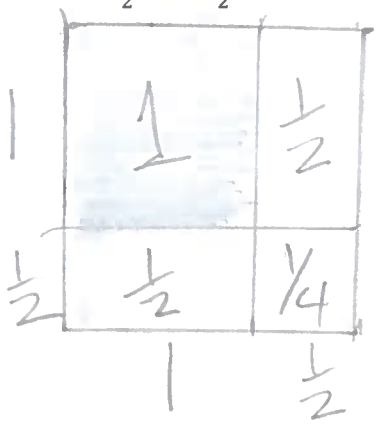
2. Find the area of rectangles with the following dimensions. Explain your thinking using the area model.

a. $1\text{ ft}\times1\frac{1}{2}\text{ ft}=1\frac{1}{2}\text{ ft}^2$



$1+\frac{1}{2}=1\frac{1}{2}\text{ ft}^2$

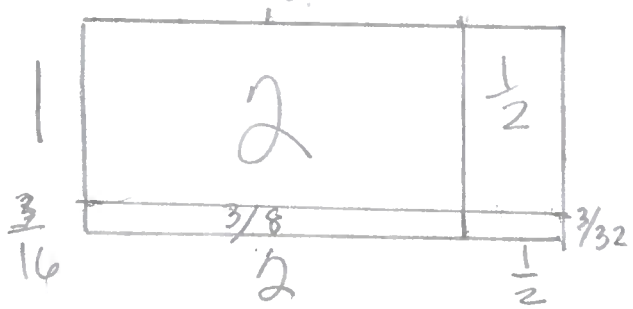
b. $1\frac{1}{2}\text{ yd}\times1\frac{1}{2}\text{ yd}$



$1+\frac{1}{2}+\frac{1}{2}+\frac{1}{4}=$

$2\frac{1}{4}\text{ yd}^2$

c. $2\frac{1}{2}\text{ yd}\times1\frac{3}{16}\text{ yd}$

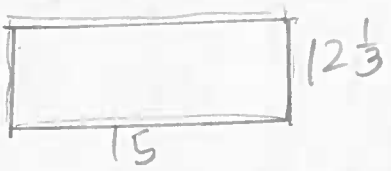


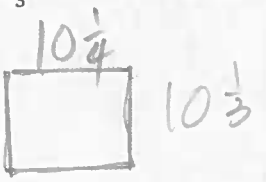
$2+\frac{1}{2}+\frac{3}{8}+\frac{3}{32}$

$2+\frac{16}{32}+\frac{12}{32}+\frac{3}{32}$

$2\frac{31}{32}\text{ yd}^2$

3. Hanley is putting carpet in her house. She wants to carpet her living room, which measures 15 ft × $12\frac{1}{3}$ ft. She also wants to carpet her dining room, which is $10\frac{1}{4}$ ft × $10\frac{1}{3}$ ft. How many square feet of carpet will she need to cover both rooms?





$15 \times 12\frac{1}{3} = 180\frac{15}{3} = 185$

$185 + 105\frac{11}{12} =$

He needs $290\frac{11}{12}$

$10\frac{1}{3} \times 10\frac{1}{4} = 100 + \frac{10}{4} + \frac{10}{3} + \frac{1}{12}$

$100 + \frac{20}{3} + \frac{1}{9} = 165 + \frac{1}{2} + \frac{1}{3} + \frac{1}{12} =$

$105\frac{11}{12}$

4. Fred cut a $9\frac{3}{4}$-inch square of construction paper for an art project. He cut a square from the edge of the big rectangle whose sides measured $3\frac{1}{4}$ inches. (See the picture below.)

a. What is the area of the smaller square that Fred cut out?

$3\frac{1}{4} \times 3\frac{1}{4} = 9 + \frac{3}{4} + \frac{3}{4} + \frac{1}{16} = 9 + \frac{6}{4} + \frac{1}{16} = 10 + \frac{2}{4} + \frac{1}{16}$

$10\frac{9}{16}$

b. What is the area of the remaining paper?

$9\frac{3}{4} \times 9\frac{3}{4} = 81 + \frac{27}{4} + \frac{27}{4} + \frac{9}{16} =$

$81 + 6\frac{3}{4} + 6\frac{3}{4} + \frac{9}{16} =$

$83 + \frac{6}{4} + \frac{9}{16} =$

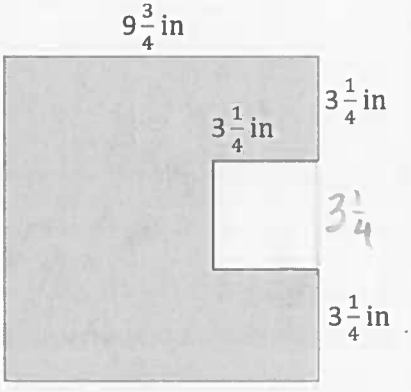
$84 + \frac{2}{4} + \frac{9}{16} = 84\frac{17}{16} =$

$85\frac{1}{16}$

$85\frac{1}{16} - 10\frac{9}{16} =$

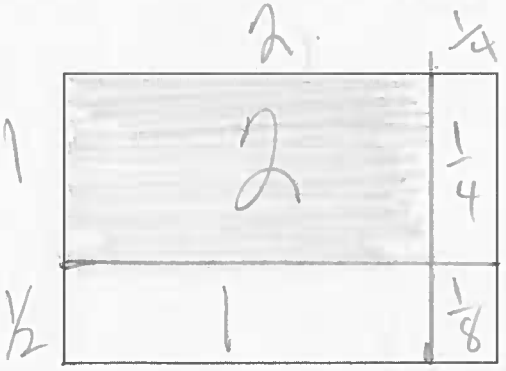
$75\frac{1}{16} - \frac{9}{16} =$

$74\frac{17}{16} - \frac{9}{16} = 74\frac{8}{16} = 74\frac{1}{2}$



Name _____ Date _____

Measure the rectangle to the nearest $\frac{1}{4}$ inch with your ruler, and label the dimensions. Find the area.



$2+1+\frac{1}{4}+\frac{1}{8}=$

$3+\frac{2}{8}+\frac{1}{8}=$

$3\frac{3}{8}$

$2\frac{1}{4} \times 1\frac{1}{2}=$

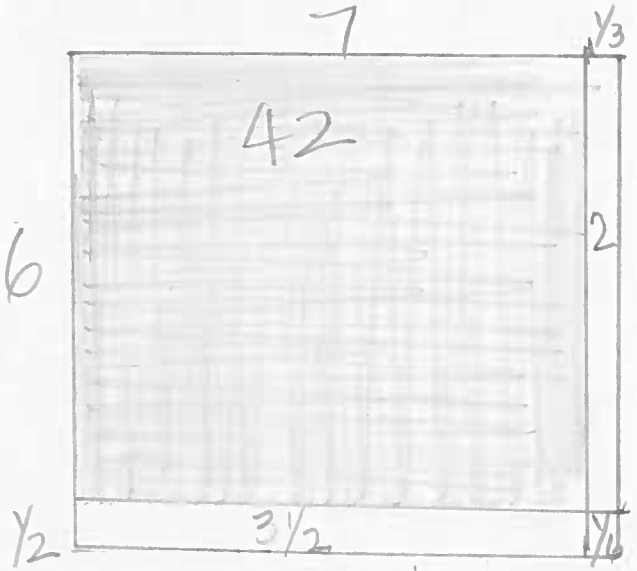
$2+\frac{2}{2}+\frac{1}{4}+\frac{1}{8}=$

$3+\frac{2}{8}+\frac{1}{8}=$

$3\frac{3}{8}$

The area is $3\frac{3}{8}$ in^2

The Colliers want to put new flooring in a $6\frac{1}{2}$-foot by $7\frac{1}{3}$-foot bathroom. The tiles they want come in 12-inch squares. What is the area of the bathroom floor? If the tiles cost $3.25 per square foot, how much will they spend on the flooring?



$42+3\frac{1}{2}+2+\frac{1}{6}=$

$47+\frac{1}{2}+\frac{1}{6}=$

$47\frac{4}{6}=$ $47\frac{2}{3}ft^2$

$6\frac{1}{2}\times 7\frac{1}{3}=$

$42+\frac{6}{3}+\frac{7}{2}+\frac{1}{6}=$

$42+2+3\frac{1}{2}+\frac{1}{6}=$

$47+\frac{1}{2}+\frac{1}{6}=$

$47+\frac{4}{6}=$ $47\frac{2}{3}ft^2$

1 2
2 4
3.25
×48
2600
+ 1300
156.00

The Colliers will spend $156.00 on the flooring

Each tile is one square foot (12 inches = 1 foot)
Since they need 47 2/3 tiles, the Colliers have to buy 48 tiles.

Read **Draw** **Write**

Name _____ Date _____

1. Find the area of the following rectangles. Draw an area model if it helps you.

a. $\frac{5}{4}$ km × $\frac{12}{5}$ km

$\frac{5}{4} \times \frac{12}{5} = \frac{60}{20} = 3 \text{ km}^2$

$A = 3 \text{ km}^2$

b. $16\frac{1}{2}$ m × $4\frac{1}{5}$ m

$16\frac{1}{2} \times 4\frac{1}{5} =$

$64 + \frac{16}{5} + \frac{4}{2} + \frac{1}{10} =$

$69\frac{1}{5} + \frac{1}{10} = 69\frac{3}{10}$

$A = 69\frac{3}{10} \text{ m}^2$

c. $4\frac{1}{3}$ yd × $5\frac{2}{3}$ yd

$4\frac{1}{3} \times 5\frac{2}{3} =$

$20 + \frac{8}{3} + \frac{5}{3} + \frac{2}{9} =$

$23 + \frac{4}{3} + \frac{2}{9} = 24 + \frac{1}{3} + \frac{2}{9} =$

$24\frac{5}{9} \text{ yd}^2$

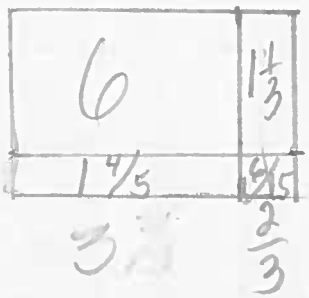
d. $\frac{7}{8}$ mi × $4\frac{1}{3}$ mi

$\frac{7}{8} \times 4\frac{1}{3} =$

$\frac{28}{8} + \frac{7}{24} = 3\frac{1}{2} + \frac{7}{24} = 3\frac{19}{24}$

$A = 3\frac{19}{24} \text{ mi}^2$

2. Julie is cutting rectangles out of fabric to make a quilt. If the rectangles are $2\frac{3}{5}$ inches wide and $3\frac{2}{3}$ inches long, what is the area of four such rectangles?



$6 + 1\frac{4}{5} + 1\frac{1}{3} + \frac{6}{15} =$

$8 + \frac{12}{15} + \frac{5}{15} + \frac{6}{15} = 9\frac{8}{15} \text{ in}^2$

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

$6 + \frac{4}{3} + \frac{9}{5} + \frac{6}{15} =$

$(1\frac{1}{3})(1\frac{4}{5})(\frac{2}{3})$

$8 + \frac{1}{3} + (\frac{4}{5} + \frac{2}{5}) = 6/5 = 1\frac{1}{5}$

$9 + \frac{1}{3} + \frac{1}{5} =$

$9\frac{8}{15}$

$9\frac{8}{15} \times 4 = 36\frac{32}{15}$

The area of 4 rectangles is $38\frac{2}{5} \text{ in}^2$

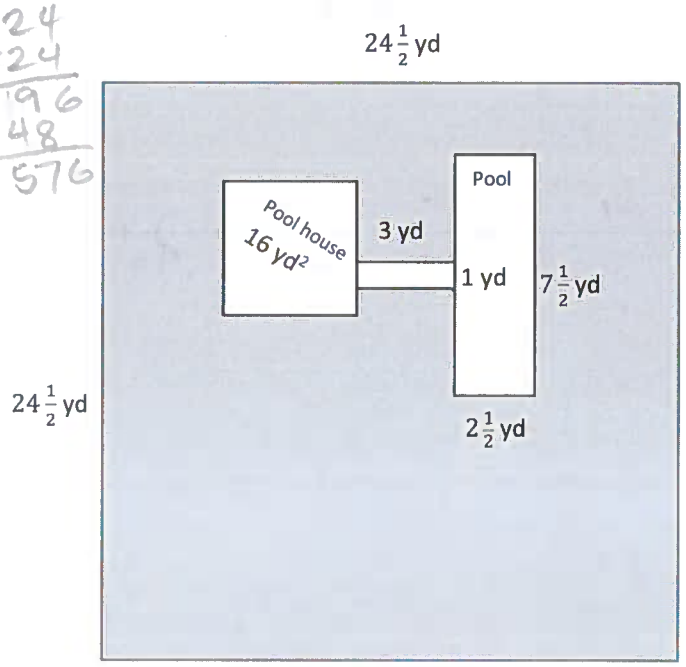
3. Mr. Howard's pool is connected to his pool house by a sidewalk as shown. He wants to buy sod for the lawn, shown in gray. How much sod does he need to buy?

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

$576 + \frac{24}{2} + \frac{24}{2} + \frac{1}{4} =$

$576 + 12 + 12 + \frac{1}{4} = \boxed{600\frac{1}{4}}$

24
×24
96
48
576



$7\frac{1}{2} \times 2\frac{1}{2} =$

$14 + \frac{7}{2} + \frac{2}{2} + \frac{1}{4} =$

$(3\frac{1}{2})\ (1)$

$18 + \frac{1}{2} + \frac{1}{4} = \boxed{18\frac{3}{4}}$

$18\frac{3}{4} + 16 + 3 = \boxed{37\frac{3}{4}}$

$3 \times 1 = \boxed{3}$

$600\frac{1}{4} - 37\frac{3}{4} =$

$563\frac{1}{4} - \frac{3}{4} =$

$562\frac{5}{4} - \frac{3}{4} =$

$562\frac{2}{4} = \boxed{562\frac{1}{2}}$

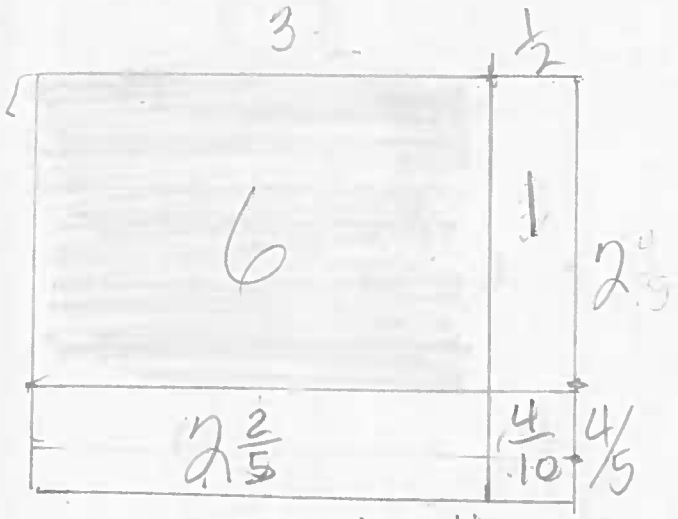
He needs to buy 562 1/2

Name _____ Date _____

Find the area of the following rectangles. Draw an area model if it helps you.

1. $\frac{7}{2}$ mm × $\frac{14}{5}$ mm

$\frac{7}{2} \times \frac{14}{5} = \frac{49}{5} = 9\frac{4}{5}$



$6 + 2\frac{2}{5} + 1 + \frac{4}{10} =$

$9 + \frac{2}{5} + \frac{2}{5} = 9\frac{4}{5}$ mm²

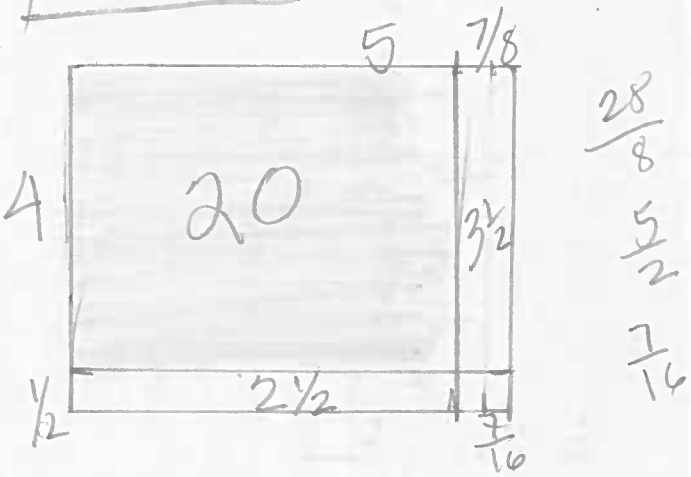
2. $5\frac{7}{8}$ km × $\frac{18}{4}$ km

$5\frac{7}{8} \times \frac{18}{4} =$

$5\frac{7}{8} \times 4\frac{1}{2} =$

$20 + \frac{5}{2} + \frac{28}{8} + \frac{7}{16} =$

$26\frac{7}{16}$



$\frac{28}{8}$ $\frac{5}{2}$ $\frac{7}{16}$

$20 + 3\frac{1}{2} + 2\frac{1}{2} + \frac{7}{16} =$

$25 + 1 + \frac{7}{16} =$

$26\frac{7}{16}$ km²

Name _____ Date _____

1. George decided to paint a wall with two windows. Both windows are $3\frac{1}{2}$-ft by $4\frac{1}{2}$-ft rectangles. Find the area the paint needs to cover.

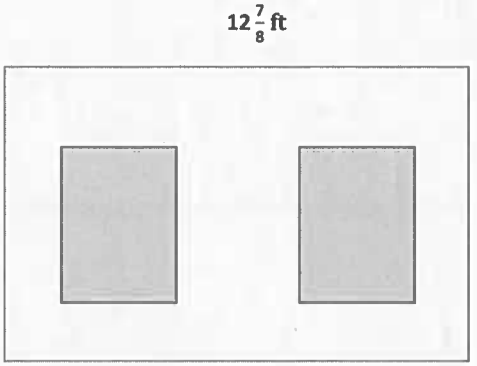
$3\frac{1}{2} \times 4\frac{1}{2} =$

$12 + \frac{3}{2}(\frac{1}{2}) + \frac{4}{2}(2) + \frac{1}{4} =$

$15 + \frac{1}{2} + \frac{1}{4} =$

$15\frac{3}{4}$

$15\frac{3}{4} \times 2 = 30 + \frac{6}{4} = 31\frac{1}{2}$



$12\frac{7}{8} \times 8 =$

$96 + \frac{56}{8}(7) =$

103 ft^2

$103 - 31\frac{1}{2} =$

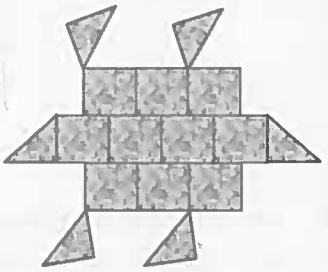
$72 - \frac{1}{2} =$

$71\frac{1}{2}$

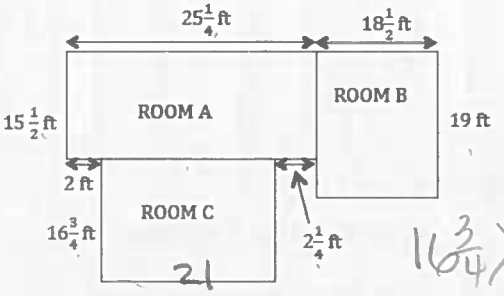
2. Joe uses square tiles, some of which he cuts in half, to make the figure below. If each square tile has a side length of $2\frac{1}{2}$ inches, what is the total area of the figure?

$2\frac{1}{2} \times 2\frac{1}{2} = 4 + \frac{2}{2} + \frac{2}{2} + \frac{1}{4} = 6\frac{1}{4}$

$13 \times 6\frac{1}{4} = 78 + \frac{13}{4} = 81\frac{1}{4}$



3. All-In-One Carpets is installing carpeting in three rooms. How many square feet of carpet are needed to carpet all three rooms?



A

$25\frac{1}{4} \times 15\frac{1}{2} =$

$375 + \frac{25}{2} + \frac{15}{4} + \frac{1}{8} =$

$375 + 12\frac{1}{2} + 3\frac{3}{4} + \frac{1}{8} =$

$390 + \frac{4}{8} + \frac{6}{8} + \frac{1}{8} =$

$391\frac{3}{8}$

B

$18\frac{1}{2} \times 19 =$

$342 + \frac{19}{2} =$

$351\frac{1}{2}$

$391\frac{3}{8}$

$351\frac{1}{2}\ \frac{4}{8}$

$351\frac{3}{4}\ \frac{6}{8}$

$1093\ \frac{13}{8}$

$1094\frac{5}{8}$

C

$16\frac{3}{4} \times 21 =$

$336 + \frac{63}{4} =$

$336 + 15\frac{3}{4} =$

$351\frac{3}{4}$

4. Mr. Johnson needs to buy sod for his front lawn.

   a. If the lawn measures $36\frac{2}{3}$ ft by $45\frac{1}{6}$ ft, how many square feet of sod will he need?

$36\frac{2}{3} \times 45\frac{1}{6} =$

$1620 + \frac{3}{6} + \frac{90}{3} + \frac{2}{18} =$

$1620 + 6 + 30 + \frac{1}{9}$

$1656\frac{1}{9}$

He needs $1,656\frac{1}{4}$ ft² of sod

   b. If sod is only sold in whole square feet, how much will Mr. Johnson have to pay?

$270.00
$110.00
29.83
40 90 83

$6
$57
× .19
413
57
29.83

$409.83

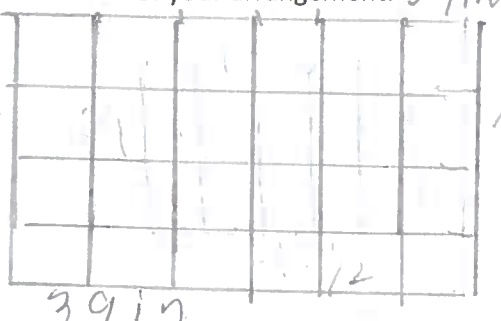
Sod Prices

Area	Price per Square Foot
First 1,000 sq ft	$0.27
Next 500 sq ft	$0.22
Additional square feet	$0.19

Mr. Johnson will have to pay $409.83

5. Jennifer's class decides to make a quilt. Each of the 24 students will make a quilt square that is 8 inches on each side. When they sew the quilt together, every edge of each quilt square will lose $\frac{3}{4}$ of an inch.

   a. Draw one way the squares could be arranged to make a rectangular quilt. Then, find the perimeter of your arrangement.



$8 - \frac{6}{4} = 6\frac{1}{2}$ ☐ $6\frac{1}{2}$

$6\frac{1}{2} \times 4 = 24 + \frac{4}{2} = 26$

$6\frac{1}{2} \times 6 = 36 + \frac{6}{2} = 39$

$26 + 39 + 26 + 39 = 130$ in

5
26
× 39
234
78
1014

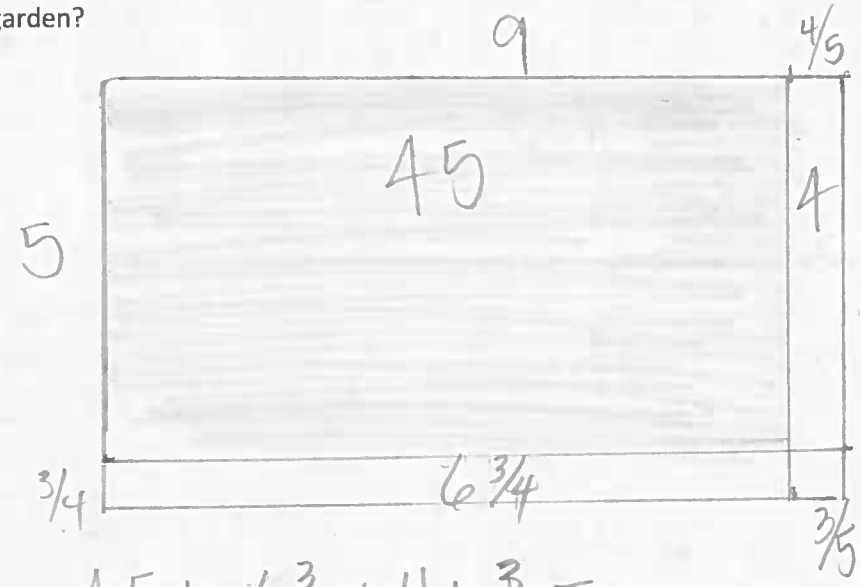
   b. Find the area of the quilt.

$A = 39 \text{ in} \times 26 \text{ in}$

The area of this quilt is $1,014 \text{ in}^2$

Name _____ Date _____

Mr. Klimek made his wife a rectangular vegetable garden. The width is $5\frac{3}{4}$ ft, and the length is $9\frac{4}{5}$ ft. What is the area of the garden?



$\frac{20}{5} = 4$

$\frac{27}{4} = 6\frac{3}{4}$

$\frac{12}{20} = \frac{3}{5}$

$45 + 6\frac{3}{4} + 4 + \frac{3}{5} =$

$55\ \frac{3}{4} + \frac{3}{5} = 56\ \frac{7}{20}$

$9\frac{4}{5} \times 5\frac{3}{4} = 45 + \frac{27}{4} + \frac{20}{5} + \frac{12}{20} =$

$45 + 6\frac{3}{4} + 4 + \frac{3}{5} =$

$55 + \frac{3}{4} + \frac{3}{5} =$

$55 + \frac{27}{20} = \boxed{56\frac{7}{20}\ ft^2}$

The area of the garden is $56\ 7/20\ ft^2$