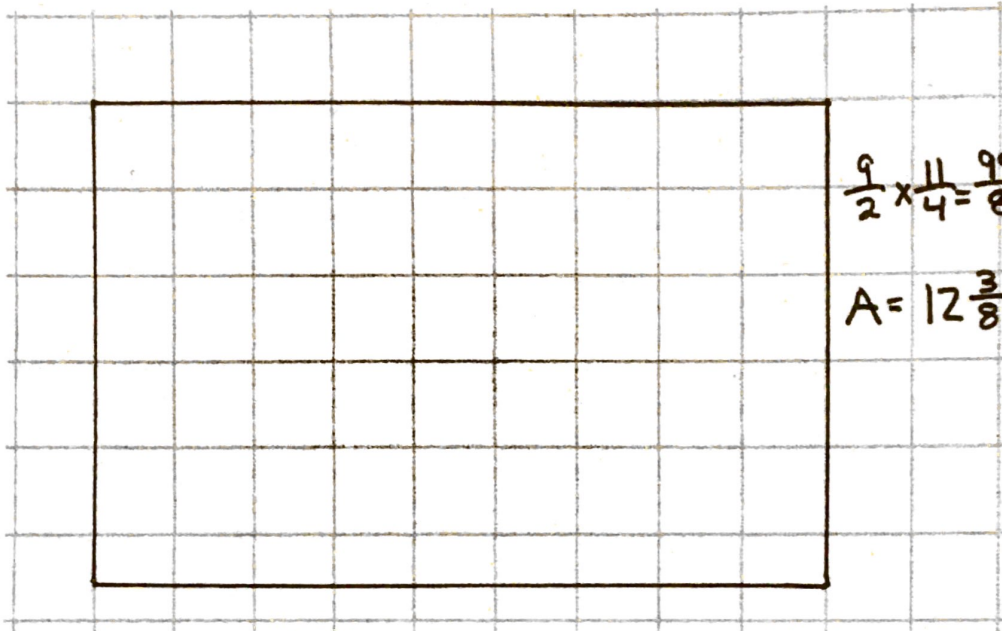
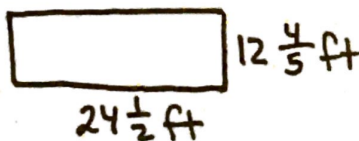


Name Jean Date \_\_\_\_\_

1. Use your ruler to draw a rectangle that measures  $4\frac{1}{2}$  by  $2\frac{3}{4}$  inches, and find its area.



2. Heather has a rectangular yard. She measures it and finds out it is  $24\frac{1}{2}$  feet long by  $12\frac{4}{5}$  feet wide.  
 a. She wants to know how many square feet of sod she will need to completely cover the yard. Draw the yard, and label the measurements.



$$\begin{array}{r} 64 \\ \times 49 \\ \hline 576 \\ + 2560 \\ \hline 3,136 \end{array}$$

$$\begin{array}{r} 1568 \\ 2 \overline{) 3136} \\ \underline{-2} \phantom{00} \\ 11 \phantom{00} \\ \underline{-10} \phantom{00} \\ 13 \phantom{00} \\ \underline{-12} \phantom{00} \\ 16 \phantom{00} \\ \underline{-16} \phantom{00} \\ 0 \end{array}$$

$$\begin{array}{r} 313\frac{3}{5} \\ 5 \overline{) 1568} \\ \underline{-15} \phantom{00} \\ 6 \phantom{00} \\ \underline{-5} \phantom{00} \\ 18 \phantom{00} \\ \underline{-15} \phantom{00} \\ 3 \end{array}$$

- b. How much sod will Heather need to cover the yard?

$$12\frac{4}{5} \times 24\frac{1}{2} = \frac{64}{5} \times \frac{49}{2} = \frac{3136}{10} = \frac{1568}{5} = 313\frac{3}{5}$$

She'll need  $313\frac{3}{5} \text{ ft}^2$  of sod to cover her yard.

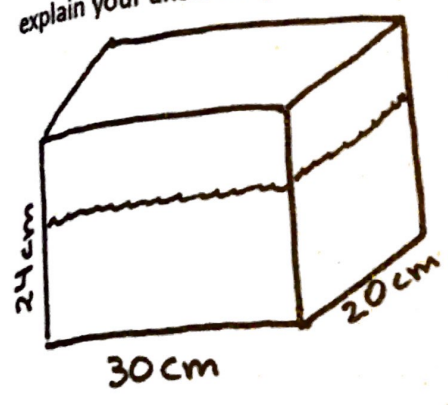
- c. If each square foot of sod costs 65 cents, how much will she have to pay to cover her yard?

$$313\frac{3}{5} = 313.6$$

$$\begin{array}{r} 313.6 \\ \times .65 \\ \hline 15680 \\ + 188160 \\ \hline 203840 \end{array}$$

Heather will have to pay \$ 203.84 to cover her yard.

3. A rectangular container that has a length of 30 cm, a width of 20 cm, and a height of 24 cm is filled with water to a depth of 15 cm. When an additional 6.5 liters of water is poured into the container, some water overflows. How many liters of water overflow the container? Use words, pictures, and numbers to explain your answer. (Remember  $1 \text{ cm}^3 = 1 \text{ mL}$ .)



$$30 \times 20 \times 24 = 720 \times 20 = 14,400$$

Volume of the container =  $14,400 \text{ cm}^3$

$$30 \times 20 \times 15 = 450 \times 20 = 9,000$$

Volume of water  $9,000 \text{ cm}^3$

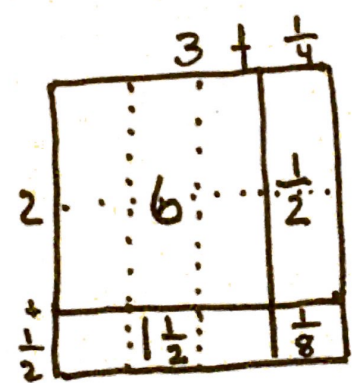
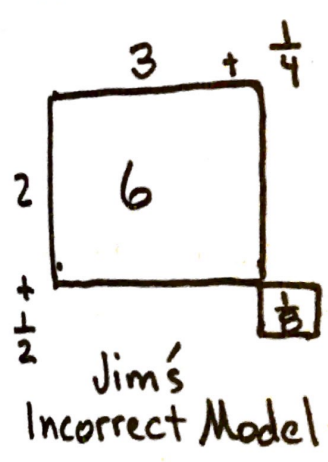
$$14,400 - 9,000 = 5,400$$

Room left in the container =  $5,400 \text{ cm}^3$  or  $5.4 \text{ L}$

$$6.5 \text{ L} - 5.4 \text{ L} = 1.1 \text{ L}$$

The water overflowed by  $1.1 \text{ L}$  or  $1,100 \text{ cm}^3$ .

4. Jim says that a  $2\frac{1}{2}$  inch by  $3\frac{1}{4}$  inch rectangle has a section that is 2 inches  $\times$  3 inches and a section that is  $\frac{1}{2}$  inch  $\times$   $\frac{1}{4}$  inches. That means the total area is just the sum of these two smaller areas, or  $6\frac{1}{8} \text{ in}^2$ . Why is Jim incorrect? Use an area model to explain your thinking. Then, give the correct area of the rectangle.

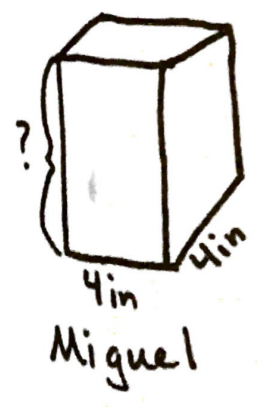


In order to find the area, all sections of the area model must be calculated and added.

$$6 + \frac{1}{2} + 1\frac{1}{2} + \frac{1}{8} = 8\frac{1}{8}$$

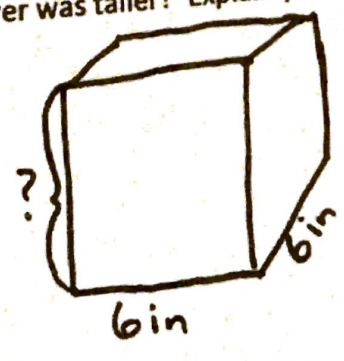
The area of the rectangle is  $8\frac{1}{8} \text{ in}^2$ .

5. Miguel and Jacqui built towers out of craft sticks. Miguel's tower had a 4-inch square base. Jacqui's tower had a 6-inch square base. If Miguel's tower had a volume of 128 cubic inches and Jacqui's had a volume of 288 cubic inches, whose tower was taller? Explain your reasoning.



$$V = 128 \text{ in}^3$$

$$\begin{array}{r} 8 \\ 16 \overline{) 128} \\ \underline{-128} \\ 0 \end{array}$$



$$V = 288 \text{ in}^3$$

$$\begin{array}{r} 8 \\ 36 \overline{) 288} \\ \underline{-288} \\ 0 \end{array}$$

Both towers have the same height of 8 in. I divided the volumes by the bases and got a height of 8 in.

6. Read the statements. Circle *True* or *False*. Explain your choice for each using words and/or pictures.

- a. All parallelograms are quadrilaterals.

True

False

All parallelograms have 4 straight sides, so all parallelograms are a type of quadrilateral.

- b. All squares are rhombuses.

True

False

All rhombuses have 4 equal sides, and so do all squares. Some rhombuses do not have 4 right angles, so not all rhombuses are squares.

- c. Squares are rhombuses, but not rectangles.

True

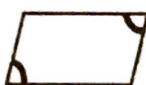
False

All squares are both rhombuses and rectangles. Squares and rhombuses both have 4 equal sides. Squares and rectangles both have 4 right angles.

- d. The opposite angles in a parallelogram have the same measure.

True

False

 The opposite sides of parallelograms are parallel and equal in length. The four angles always add up to  $360^\circ$ . Opposite angles are always equal.

- e. Because the angles in a rectangle are  $90^\circ$ , it is not a parallelogram.

True

False

All rectangles are parallelograms because all rectangles have 2 pairs of parallel sides.

- f. The sum of the angle measures of any trapezoid is greater than the sum of the angle measures of any parallelogram.

True

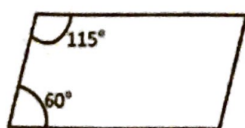
False

The sum of the 4 angles of any quadrilateral, including trapezoids and parallelograms, is always  $360^\circ$ .

- g. The following figure is a parallelogram.

True

False



Opposite angles in a parallelogram are always equal. If you add up these angles ( $60^\circ + 60^\circ + 115^\circ + 115^\circ$ ) the sum is only  $350^\circ$ . Therefore, the opposite angles can't be equal, and this isn't a parallelogram. The angles need to add up to  $360^\circ$ .