

MSP

Grade 5 Module 5

Lesson Refreshers

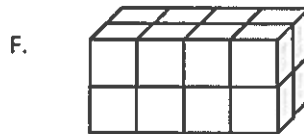
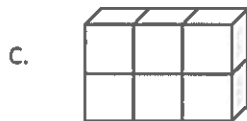
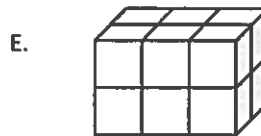
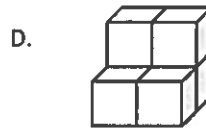
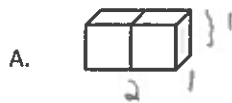
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Homework Starters

Name _____

Date _____

1. The following solids are made up of 1 cm cubes. Find the total volume of each figure, and write it in the chart below.



| Figure | Volume | Explanation |
|--------|-------------------|---|
| A | 2 cm ³ | I counted 2 cubes. Checked using the volume formula 2 × 1 × 1 |
| B | 4 cm ³ | I added 1 cube and 3 cubes |
| C | 6 cm ³ | I used the Volume = l × w × h formula 2 × 3 × 1 = 6 |
| D | | |
| E | | |
| F | | |

PK.

2. Draw a figure with the given volume on the dot paper.

a. 3 cubic units

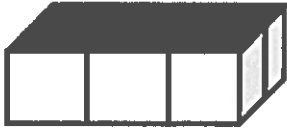
b. 6 cubic units

c. 12 cubic units

on back

2. How many centimeter cubes would fit inside each box? Explain your answer using words and diagrams on each box. (The figures are not drawn to scale.)

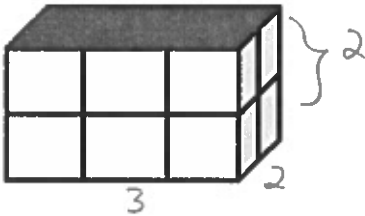
a.



Number of cubes: _____

Explanation:

b.



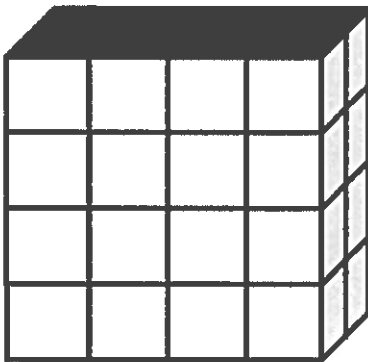
Number of cubes: 12

Explanation: There are 2 layers, top and bottom. Each layer has 6 cubes.

$$V = 3 \times 2 \times 2 = 12 \text{ cm}^3$$

P.K.

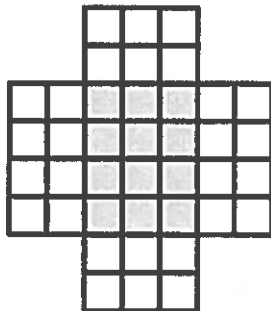
c.



Number of cubes: _____

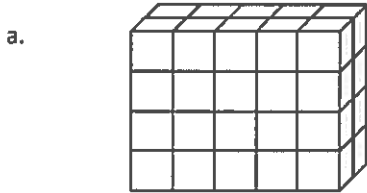
Explanation:

3. The box pattern below holds 24 1-centimeter cubes. Draw two different box patterns that would hold the same number of cubes

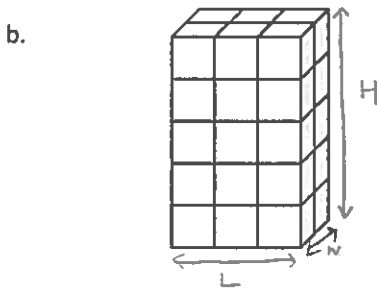


Name _____ Date _____

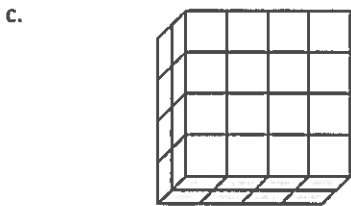
1. Each rectangular prism is built from centimeter cubes. State the dimensions, and find the volume.



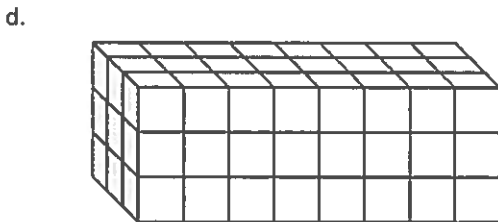
Length: _____ cm
 Width: _____ cm
 Height: _____ cm
 Volume: _____ cm³



Length: 3 cm
 Width: 2 cm
 Height: 5 cm
 Volume: 30 cm³



Length: _____ cm
 Width: _____ cm
 Height: _____ cm
 Volume: _____ cm³



Length: _____ cm
 Width: _____ cm
 Height: _____ cm
 Volume: _____ cm³

2. Write a multiplication sentence that you could use to calculate the volume for each rectangular prism in Problem 1. Include the units in your sentences.

a. _____

b. $3\text{ cm} \times 2\text{ cm} \times 5\text{ cm} = 30\text{ cm}^3$

c. _____

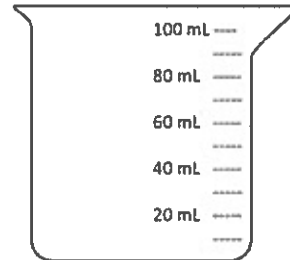
d. _____

K&P

Name _____

Date _____

1. Johnny filled a container with 30 centimeter cubes. Shade the beaker to show how much water the container will hold. Explain how you know.



2. A beaker contains 250 mL of water. Jack wants to pour the water into a container that will hold the water. Which of the containers pictured below could he use? Explain your choices.

$V = 12 \times 12 \times 6$
 $= 144 \times 6$
 $= 864 \text{ cm}^3$

12 cm 12 cm 6 cm

A

yes

$V = 25 \times 5 \times 2$
 $= 125 \times 2$
 $= 250 \text{ cm}^3$

5 cm 25 cm 2 cm

C

yes

$A = l \times w$
 $A = 20 \text{ cm}^2$
 $V = l \times w \times h$
 $= 20 \times 12$
 $= 240 \text{ cm}^3$

Area = 20 cm² 12 cm

B

no

$A = l \times w$
 $V = l \times w \times h$
 $= 75 \times 3$
 $= 225 \text{ cm}^3$

Area = 75 cm² 3 cm

E

no

$V = l \times w \times h$
 $= 5 \times 3 \times 15$
 $= 15 \times 15$
 $= 225 \text{ cm}^3$

3 cm 5 cm 15 cm

D

PK, no

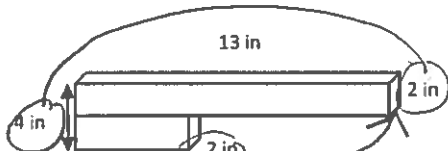
3. On the back of this paper, describe the details of the activities you did in class today. Include what you learned about cubic centimeters and milliliters. Give an example of a problem you solved with an illustration.

Name _____

Date _____

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

a. $13 \times 2 \times 2 = 26 \times 2 = 52 \text{ in}^3$



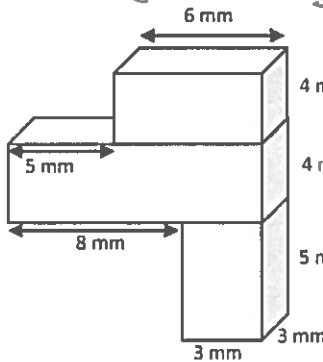
$4 - 2 = 2$
 $5 \times 2 \times 2 = 10 \times 2 = 20 \text{ in}^3$

$$\begin{array}{r} 52 \\ + 20 \\ \hline 72 \end{array}$$

Volume: 72 in³

Solution Strategy:

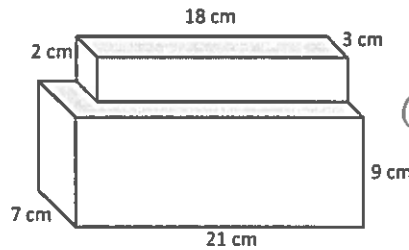
I had to find the missing information. For the top prism, the width was missing, but it is the same width as the bottom prism. The bottom prism was missing the height, 4 in. was the height for the 2 prisms together.



Volume: _____

Solution Strategy:

b.

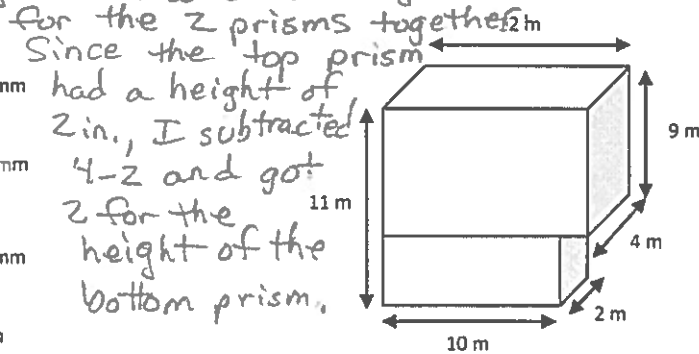


Volume: _____

Solution Strategy:

$V = l \times h \times w$

- ① Find volume of each rectangular prism.
- ② Add together.



Volume: _____

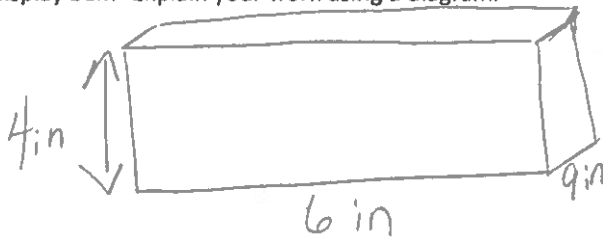
Solution Strategy:

Name _____

Date _____

Wren makes some rectangular display boxes.

1. Wren's first display box is 6 inches long, 9 inches wide, and 4 inches high. What is the volume of the display box? Explain your work using a diagram.



$$V = l \times w \times h$$

$$V = 6 \text{ in} \times 9 \text{ in} \times 4 \text{ in}$$

$$V = 216 \text{ in}^3$$

2. Wren wants to put some artwork into three shadow boxes. She knows they all need a volume of 60 cubic inches, but she wants them all to be different. Show three different ways Wren can make these boxes by drawing diagrams and labeling the measurements.

| | |
|--------------|--------------|
| Shadow Box A | Shadow Box B |
| Shadow Box C | |

KP

Name _____

Date _____

1. I have a prism with the dimensions of 6 cm by 12 cm by 15 cm. Calculate the volume of the prism, and then give the dimensions of three different prisms that each have $\frac{1}{3}$ of the volume.

| | Length | Width | Height | Volume |
|----------------|--------|-------|--------|--------|
| Original Prism | 6 cm | 12 cm | 15 cm | |
| Prism 1 | | | | |
| Prism 2 | | | | |
| Prism 3 | | | | |

2. Sunni's bedroom has the dimensions of 11 ft by 10 ft by 10 ft. Her den has the same height but double the volume. Give two sets of the possible dimensions of the den and the volume of the den.

$$\begin{aligned}
 V_B &= l \times w \times h \\
 &= 11 \times 10 \times 10 \\
 &= 1,100 \text{ft}^3
 \end{aligned}$$

$$\begin{aligned}
 V_D &= l \times w \times h \\
 2,200 &= \underbrace{l \times w}_{220} \times 10
 \end{aligned}$$

$$\begin{aligned}
 &\downarrow \\
 &220 \\
 &L \times W \times H
 \end{aligned}$$

Possible Dimensions: {

$$\begin{aligned}
 &20 \times 11 \times 10 = 2,200 \text{ft}^3 \\
 &22 \times 10 \times 10 = 2,200 \text{ft}^3
 \end{aligned}$$

Name _____ Date _____

1. Find three rectangular prisms around your house. Describe the item you are measuring (cereal box, tissue box, etc.), and then measure each dimension to the nearest whole inch, and calculate the volume.

a. Rectangular Prism A

Item: cosmetic case

Height: 2 inches

Length: 5 inches

Width: 3 inches

Volume: 30 cubic inches

$$V = l \times w \times h$$

$$30 = 5 \times 3 \times 2$$

b. Rectangular Prism B

Item: _____

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches

c. Rectangular Prism C

Item: _____

Height: _____ inches

Length: _____ inches

Width: _____ inches

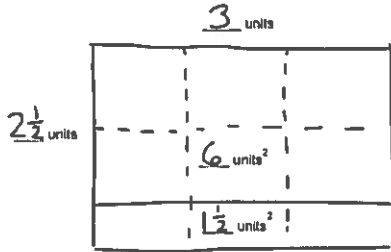
Volume: _____ cubic inches

Name _____ Date _____

1. John tiled some rectangles using square units. Sketch the rectangles if necessary. Fill in the missing information, and then confirm the area by multiplying.

a. Rectangle A:

Rectangle A is



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

Area = $7\frac{1}{2}$ units²

$$3 \text{ units} \times 2 \text{ units} = 6 \text{ units}^2$$

$$3 \text{ units} \times \frac{1}{2} \text{ units} = 1\frac{1}{2}$$

$$6 \text{ units}^2 + 1\frac{1}{2} \text{ units}^2 =$$

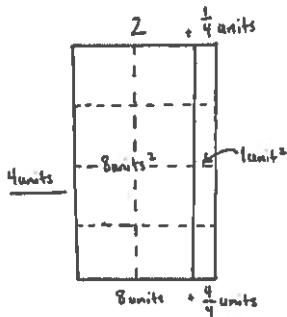
$$7\frac{1}{2} \text{ units}^2$$

PK.

A = length \times width
 $3 \times 2\frac{1}{2}$
 $3 \times \frac{5}{2} = \frac{15}{2} = 7\frac{1}{2} \text{ units}^2$

b. Rectangle B:

Rectangle B is



_____ units long _____ units wide

Area = _____ units²

c. Rectangle C:

Rectangle C is

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

Area = _____ units²

d. Rectangle D:

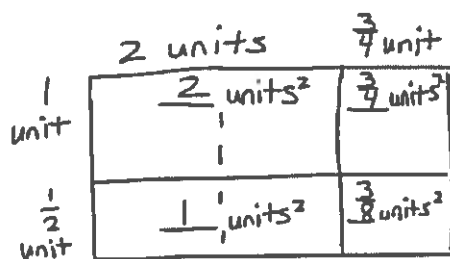
Rectangle D is

_____ units long _____ units wide

Name _____ Date _____

1. Kristen tiled the following rectangles using square units. Sketch the rectangles, and find the areas. Then, confirm the area by multiplying. Rectangle A has been sketched for you.

a. Rectangle A:



Rectangle A is

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

Area = $4\frac{1}{8}$ units²

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

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

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

$$= 3 + \frac{9}{8} = 3 + \frac{8}{8} + \frac{1}{8} = 3 + 1 + \frac{1}{8} = 4\frac{1}{8}$$

b. Rectangle B:

Rectangle B is

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

Area = _____ units²

c. Rectangle C:

Rectangle C is

$$3\frac{1}{3} \text{ units long} \times 2\frac{1}{2} \text{ units wide}$$

Area = _____ units²

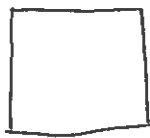
d. Rectangle D:

Rectangle D is

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

Area = _____ units²

2. A square has a perimeter of 25 inches. What is the area of the square?



$$A = 6\frac{1}{4} \times 6\frac{1}{4}$$

$$A = 39\frac{1}{8} \text{ in}^2$$

$$25 \div 4 = 6\frac{1}{4} \text{ in.}$$

$$\begin{array}{r} 06\frac{1}{4} \\ 4 \overline{) 25} \\ \underline{-0} \\ 25 \\ \underline{-24} \\ 1 \end{array}$$

| | | |
|---------------|----------------|------------------------------|
| | $6\frac{1}{4}$ | |
| 6 | 36 | $\frac{3}{4} = 1\frac{1}{2}$ |
| $\frac{1}{4}$ | $1\frac{1}{2}$ | $\frac{1}{8}$ |

$$= 36 + 1\frac{1}{2} + 1\frac{1}{2} + \frac{1}{8}$$

$$= 36 + 3 + \frac{1}{8} = 39\frac{1}{8}$$

Perimeter is the length around the shape. To find the perimeter, add up all the sides.

For a square, all 4 sides are the same length. To find the length of 1 side, divide the perimeter by 4.

Name _____

Date _____

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

a. $\frac{8}{3} \text{ cm} \times \frac{24}{4} \text{ cm}$

b. $\frac{32}{5} \text{ ft} \times 3\frac{3}{8} \text{ ft}$

$$\frac{8}{3} \times \frac{24}{4}$$

$$= \frac{8 \times 24}{3 \times 4}$$

$$= \frac{192}{12} = 16 \text{ cm}^2$$

$$\begin{array}{r} 16 \\ 12 \overline{)192} \\ \underline{-12} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

c. $5\frac{4}{6} \text{ in} \times 4\frac{3}{5} \text{ in}$

d. $\frac{5}{7} \text{ m} \times 6\frac{3}{5} \text{ m}$

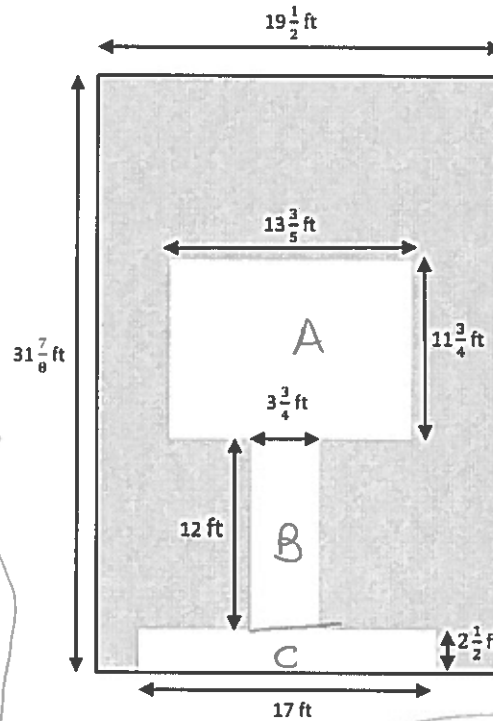
| | | | |
|---------------|--|--|--|
| 4 | $4 \times 5 =$ 20 | $\frac{4}{1} \times \frac{4}{6} =$ $\frac{16}{6} = \frac{8}{3}$ | $20 + 2\frac{4}{6} + 3 + \frac{12}{30}$ |
| $\frac{3}{5}$ | $\frac{3}{5} \times 5 =$ $\frac{15}{5} = 3$ | $\frac{3}{5} \times \frac{4}{6} =$ $\frac{12}{30}$ | $= 25 + \frac{20}{30} + \frac{12}{30}$ |
| | | | $= 25 + \frac{32}{30} = 25 + 1 + \frac{2}{30}$ |
| | | | $= 26\frac{2}{30} = 26\frac{1}{15} \text{ in}^2$ |

2. Chris is making a tabletop from some leftover tiles. He has 9 tiles that measure $3\frac{1}{8}$ inches long and $2\frac{3}{4}$ inches wide. What is the greatest area he can cover with these tiles?

PT

3. A hotel is recarpeting a section of the lobby. Carpet covers the part of the floor as shown below in gray. How many square feet of carpeting will be needed?

- ① Find area of entire rectangular prism.
- ② Find total area of white section.
- ③ Subtract white section total from area of entire rectangular prism.



②
$$\begin{array}{r} 511 \\ 621 \frac{90}{160} \\ - 247 \frac{48}{160} \\ \hline 374 \frac{42}{160} = \\ 374 \frac{21}{80} \text{ sq. ft.} \end{array}$$

① $19 \frac{1}{2} \times 31 \frac{7}{8}$

| | | |
|---------------|----------------------------------|---------------------------------|
| 31 | 589 | $\frac{31}{2} = 15 \frac{1}{2}$ |
| $\frac{7}{8}$ | $\frac{133}{8} = 16 \frac{5}{8}$ | $\frac{7}{16}$ |

$$\begin{array}{r} 19 \\ \times 31 \\ \hline 57 \\ 589 \end{array}$$

$$\begin{aligned} & 589 + 15 \frac{1}{2} + 16 \frac{5}{8} + \frac{7}{16} \\ & = 620 + \frac{8}{16} + \frac{10}{16} + \frac{7}{16} \\ & = 620 + \frac{25}{16} \\ & = 620 + 1 + \frac{9}{16} \\ & = 621 \frac{9}{16} \text{ sq. ft.} \end{aligned}$$

$A = 13 \frac{3}{5} \times 11 \frac{3}{4} = 159 \frac{8}{10} \text{ sq. ft.}$

$B = 12 \times 3 \frac{3}{4} = 45 \text{ sq. ft.}$

$C = 17 \times 2 \frac{1}{2} = 42 \frac{1}{2} \text{ sq. ft.}$

$246 \frac{13}{10} = 247 \frac{3}{10}$

| | | |
|---------------|--------------------------------|--------------------------------|
| A | 143 | $\frac{33}{5} = 6 \frac{3}{5}$ |
| $\frac{3}{4}$ | $\frac{39}{4} = 9 \frac{3}{4}$ | $\frac{9}{20}$ |

$= 143 + 6 \frac{3}{5} + 9 \frac{3}{4} + \frac{9}{20}$

$= 158 + \frac{12}{20} + \frac{15}{20} + \frac{9}{20}$

$= 158 + \frac{36}{20} = 158 + 1 + \frac{16}{20} = 159 \frac{8}{10}$

| | | |
|----|----|--------------------|
| B | 36 | $\frac{36}{4} = 9$ |
| 12 | | |

$36 + 9 = 45$

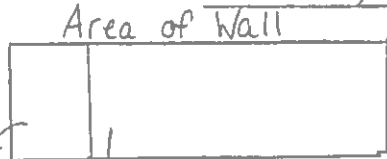
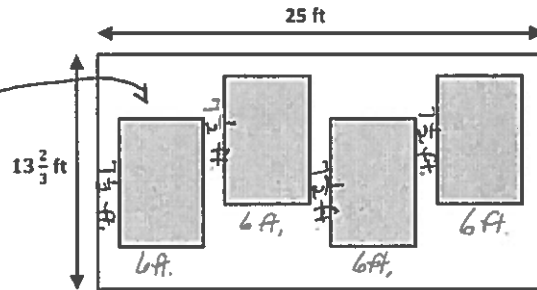
| | | |
|----|----|--------------------------------|
| C | 34 | $\frac{17}{2} = 8 \frac{1}{2}$ |
| 17 | | |

$34 + 8 \frac{1}{2} = 42 \frac{1}{2}$

Name _____

Date _____

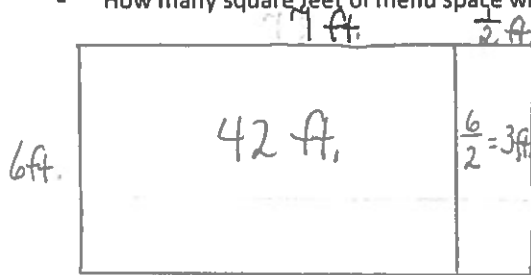
1. Mr. Albano wants to paint menus on the wall of his café in chalkboard paint. The gray area below shows where the rectangular menus will be. Each menu will measure 6-ft wide and $7\frac{1}{2}$ -ft tall.



Covered by wall paint

covered by chalkboard paint menus

- How many square feet of menu space will Mr. Albano have?

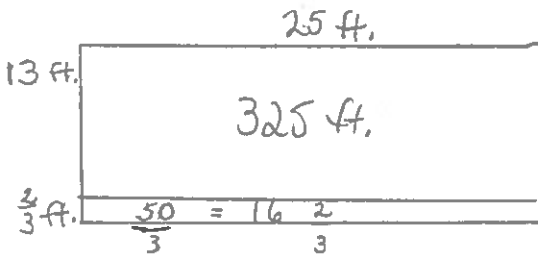


$$42 + 3 = 45 \text{ ft}^2 \text{ (1 menu)}$$

$$45 \times 4 = 180 \text{ ft}^2 \text{ (4 menus)}$$

Mr. Albano will have 180 ft.² of menu space,

- What is the area of wall space that is not covered by chalkboard paint?



$$\begin{array}{r} 25 \\ \times 13 \\ \hline 75 \\ 325 \\ \hline 325 \end{array}$$

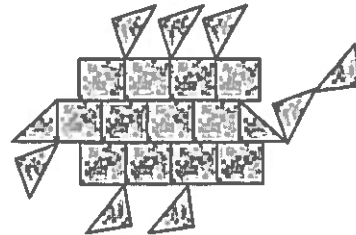
$$\begin{array}{r} 16 \\ 3 \overline{) 50} \\ \underline{3} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

$$\begin{array}{r} 325 \\ 16\frac{2}{3} \\ \hline 341\frac{2}{3} \end{array} \text{ (wall)}$$

$$\begin{array}{r} 341\frac{2}{3} \text{ (wall)} \\ - 180 \text{ (menus)} \\ \hline 161\frac{2}{3} \end{array}$$

$161\frac{2}{3} \text{ ft}^2$ is not covered by chalkboard paint.

2. Mr. Albano wants to put tiles in the shape of a dinosaur at the front entrance. He will need to cut some tiles in half to make the figure. If each square tile is $4\frac{1}{4}$ inches on each side, what is the total area of the dinosaur?



Name _____

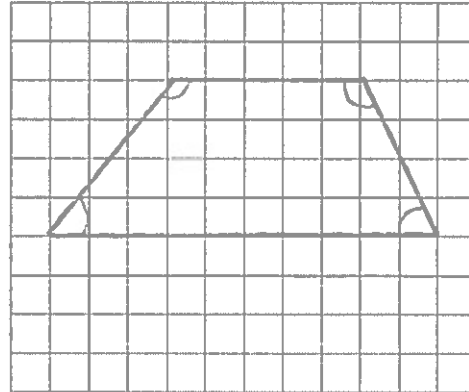
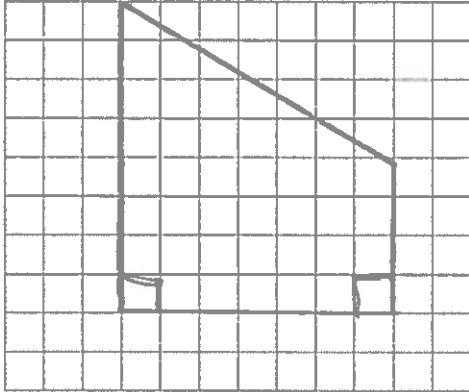
Date _____

1. Use a straightedge and the grid paper to draw:

a. A trapezoid with exactly 2 right angles.

b. A trapezoid with no right angles.

* Right angles are 90°
The \perp equals 90°



* All angles are either acute or obtuse.

2. Kaplan incorrectly sorted some quadrilaterals into trapezoids and non-trapezoids as pictured below.

Begiers

a. Circle the shapes that are in the wrong group, and tell why they are sorted incorrectly.

| Trapezoids | Non-Trapezoids |
|------------|----------------|
| | |

b. Explain what tools would be necessary to use to verify the placement of all the trapezoids.

Name _____

Date _____

1. $\angle A$ measures 60° .

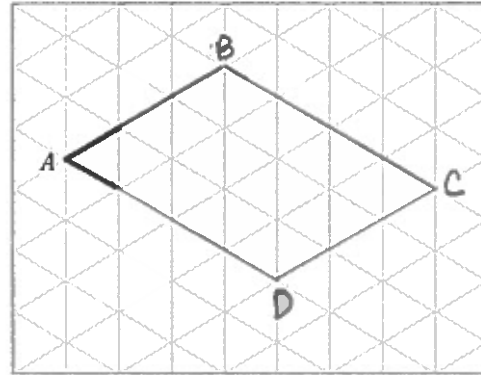
a. Extend the rays of $\angle A$, and draw parallelogram $ABCD$ on the grid paper.

b. What are the measures of $\angle B$, $\angle C$, and $\angle D$?

$\angle B = 120^\circ$

$\angle C = 60^\circ$

$\angle D = 120^\circ$

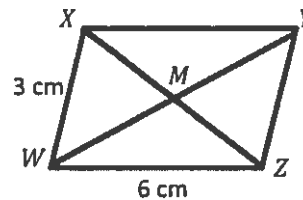


2. $WXYZ$ is a parallelogram (not drawn to scale).

a. Using what you know about parallelograms, give the measure of sides XY and YZ .

$\overline{XY} = 6\text{ cm}$ $\overline{YZ} = 3\text{ cm}$

b. $\angle WXY = 113^\circ$. Use what you know about angles in a parallelogram to find the measure of the other angles.



$\angle XYZ = 67^\circ$

$\angle YZW = 113^\circ$

$\angle ZWX = 67^\circ$

Note: In each parallelogram there are 2 pairs of angles that add up to 180° . 2 sets of opposite sides parallel. Their opposite angles are equal in measure, and opposite sides are equal in length.

3. Jack measured some segments in Problem 2. He found that $\overline{WY} = 8\text{ cm}$ and $\overline{MZ} = 3\text{ cm}$.

Give the lengths of the following segments:

$WM =$ _____ cm

$MY =$ _____ cm

$XM =$ _____ cm

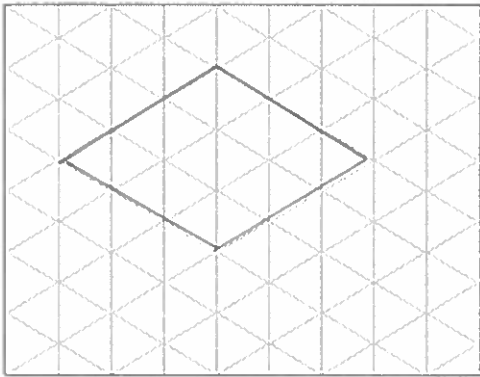
$XZ =$ _____ cm

Name _____

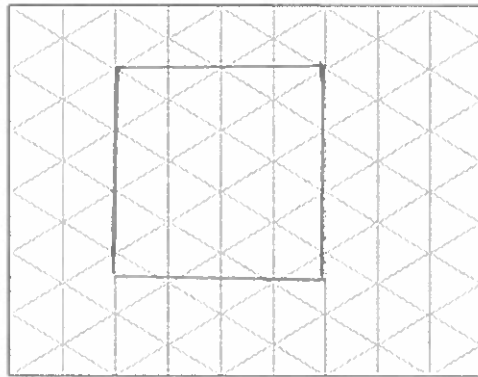
Date _____

1. Use the grid paper to draw.

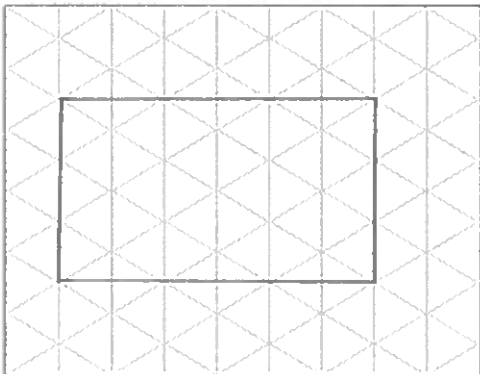
a. A rhombus with no right angles



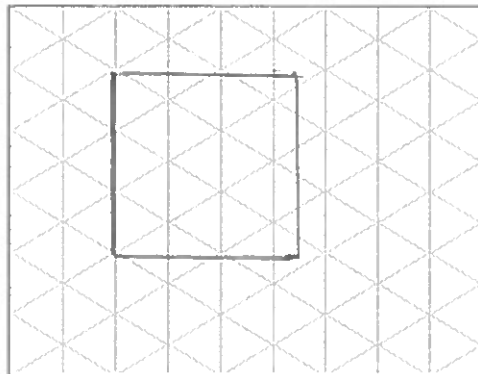
b. A rhombus with 4 right angles *- square*



c. A rectangle with not all sides equal



d. A rectangle with all sides equal *- square*



Barne S

2. A rhombus has a perimeter of 217 cm. What is the length of each side of the rhombus?

Since a rhombus is a quadrilateral with all sides equal in length.

Then the perimeter = $s + s + s + s$ where s = side of the rhombus

$$54 \frac{1}{4} = \text{side}$$

$$4 \overline{) 217}$$

$$\underline{-20}$$

$$17$$

$$\underline{-16}$$

$$1$$

or



The length of each side = $54 \frac{1}{4}$ cm

perimeter = 217

3. List the properties that all rhombuses share.

4. List the properties that all rectangles share.

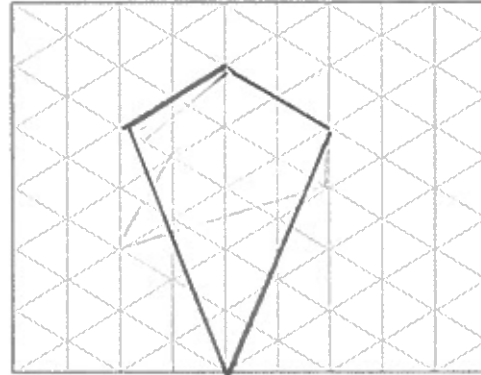
Name _____

Date _____

1. a. Draw a kite that is not a parallelogram on the grid paper.

b. List all the properties of a kite.

The kite has 2 pairs of adjacent sides that are equal.



c. When can a parallelogram also be a kite?

A Parallelogram can be a kite when it is a square or a rhombus.

Beginners

2. If rectangles must have right angles, explain how a rhombus could also be called a rectangle.

Name _____

Date _____

1. Answer the questions by checking the box.

- a. Is a square a rectangle?
- b. Is a rectangle a kite?
- c. Is a rectangle a parallelogram?
- d. Is a square a trapezoid?
- e. Is a parallelogram a trapezoid?
- f. Is a trapezoid a parallelogram?
- g. Is a kite a parallelogram?

| Sometimes | Always |
|-----------|--------|
| | ✓ |
| ✓ | |
| | ✓ |
| | ✓ |
| | ✓ |
| | ✓ |
| ✓ | |

h. For each statement that you answered with *sometimes*, draw and label an example that justifies your answer.

b.  rhombus g.  square

2. Use what you know about quadrilaterals to answer each question below.

- a. Explain when a trapezoid is not a parallelogram. Sketch an example.

- b. Explain when a kite is not a parallelogram. Sketch an example.