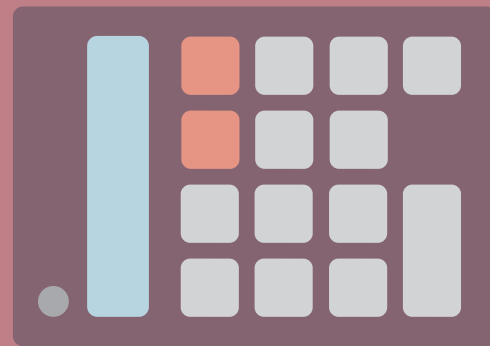




MATH

Student Book

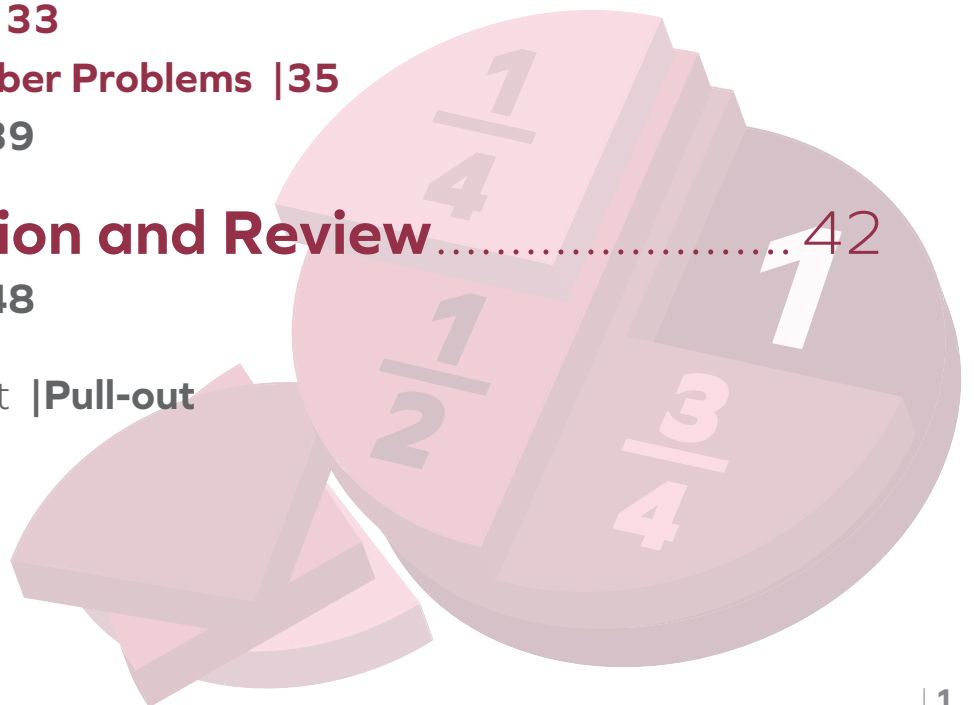


► **4th Grade | Unit 4**

MATH 404

LINES AND SHAPES

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LIFEPAC Test	Pull-out



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1. PLANE AND SOLID SHAPES

Objectives










Read these objectives. When you have completed this section, you should be able to:

- Identify plane and solid shapes.
- Measure the dimensions of plane and solid shapes.



Complete this activity.

1.1 Match the figure to its name.

- | | | |
|----------|---|--------------|
| a. _____ |  | 1. oval |
| b. _____ |  | 2. hexagon |
| c. _____ |  | 3. pentagon |
| d. _____ |  | 4. square |
| e. _____ |  | 5. octagon |
| f. _____ |  | 6. triangle |
| g. _____ |  | 7. circle |
| h. _____ |  | 8. diamond |
| i. _____ |  | 9. rectangle |

In mathematics, we describe a flat shape as a **plane shape**.

1.2 Is each of the figures in 1.1 a plane shape? _____

We may say that each one of these figures belongs to the general group of plane shapes.

Polygons are closed, plane figures with 3 or more sides.



Complete these activities.

- 1.3** Look at the figures in 1.1.
- Is each of these figures a closed figure? _____
 - Do all the sides meet and join each other? _____
 - Does each figure have three or more sides? _____
 - Which ones do not have three or more sides? _____, _____

Plane shapes are all around us. The piece of paper you are writing on is an example of a rectangle. Doors and windows are rectangles. Watch the road signs when you are riding in a car. Make a list of all the examples of polygons and plane shapes that you find.

Rectangles and squares can be measured using length and width. The length is the longer side, and the width is the shorter side. Length and width are called dimensions.

The **dimensions** of rectangles and squares are length and width. Rectangles and squares are two-dimensional figures.





Complete these activities. You will need a ruler.



Figure A



Figure B

- 1.4** Write the dimensions of Figure A. length _____ width _____
- 1.5** Measure Figure B in inches. Write the dimensions.
length _____ width _____
- 1.6** Write the name of each plane shape by its definition. Look at the figures at the beginning of this section to help you.
- Three-sided polygon _____
 - Four-sided polygon with all sides equal _____
 - Four-sided polygon with opposite sides equal _____
 - A four-sided polygon that stands on end _____
 - A closed plane shape with no straight sides _____
 - Five-sided polygon _____
 - Six-sided polygon _____
 - Eight-sided polygon _____
 - A flattened closed plane shape with no straight sides _____
- 1.7** What is another word to describe a plane shape? _____
- 1.8** How many sides must a polygon have? _____
- 1.9** What do we call the length and width of a rectangle? _____

1.10 Match the solid shape with its name.



1. cylinder

2. cube

3. sphere

4. pyramid

5. cone

Plane shapes are flat **shapes**. They do not take up space. **Solid shapes** do take up space.

Most of the objects around us are solid shapes. Chairs, desks, and tables are all examples of solid shapes.

The dimensions of a solid **shape** are length, width, and height. Solid shapes are three-dimensional figures.



Complete these activities. You will need a ruler.

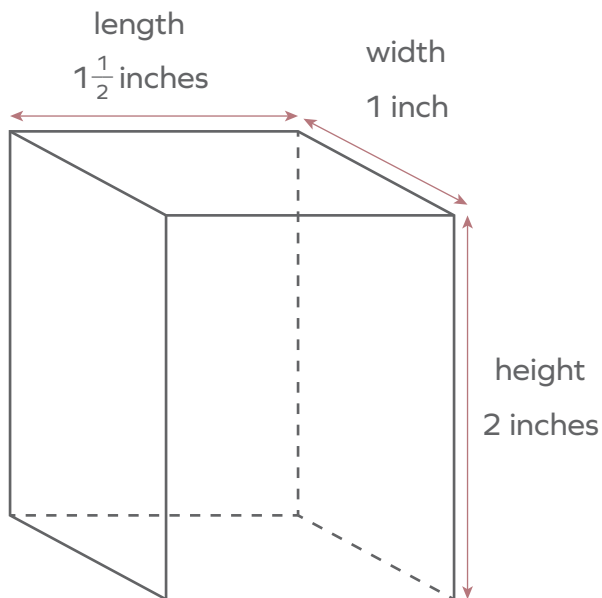


Figure A

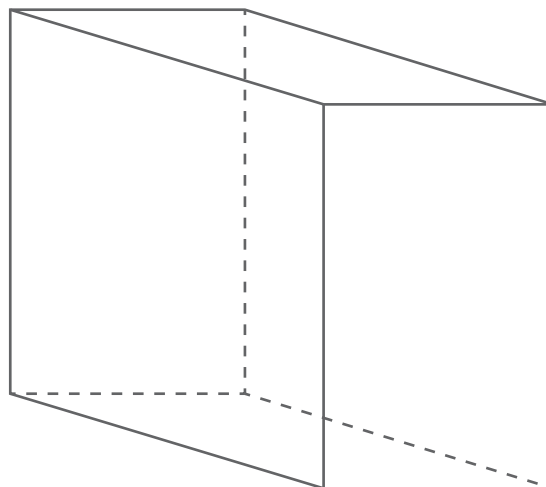


Figure B

1.11 Write the dimensions of Figure A.

length _____ width _____ height _____

1.12 Measure Figure B in inches. Write the dimensions.

length _____ width _____ height _____

The sides of a solid are called **faces**.

1.13 Look carefully.

How many faces do you count for Figure A? _____ B? _____

- 1.14** Write the name of the solid shape by its definition.
Look at the figures you have matched in activity 1.10 to help you.
- The bottom is round like a circle. The top is a point. _____
 - This solid has six flat sides. Each side is the shape of a square. Each square is the same size. _____
 - The bottom may be any shape of a polygon. The top is a point. The sides must be triangles. _____
 - This is a perfectly round shape like a ball. _____
 - The top and bottom of this solid shape are circles. _____
 - How many dimensions do plane shapes have? _____
 - How many dimensions do solid shapes have? _____

1.15 Using solid shapes, how would you describe ...

- a baseball?  _____
- something to hold ice cream?  _____
- something inside a roll of paper towels?  _____
- something to keep a drink cold?  _____
- a burial place in Egypt?  _____



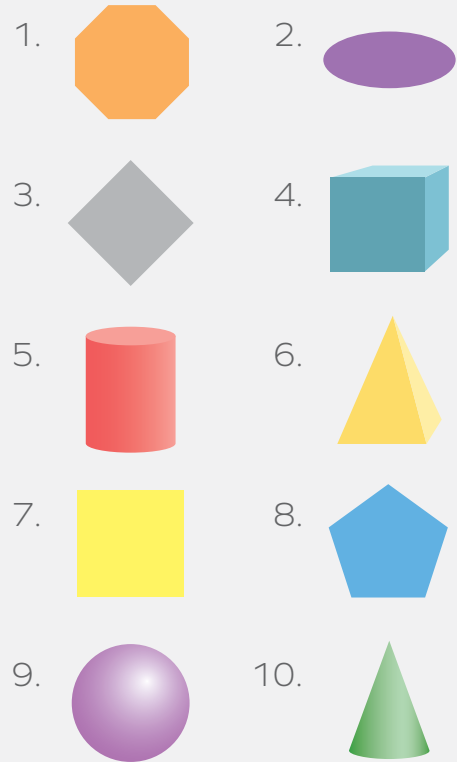
Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.

SELF TEST 1

Complete these activities (each answer = 1 point).

1.01 Match the figure with its name.

- a. _____ cone
- b. _____ diamond
- c. _____ pyramid
- d. _____ octagon
- e. _____ sphere
- f. _____ oval
- g. _____ cylinder
- h. _____ square
- i. _____ cube
- j. _____ pentagon



1.02 A polygon is a figure with a plane shape. What is another word for *plane*?

1.03 Plane shapes and solid shapes are all around us.

- a. List two examples of plane shapes. _____ , _____
- b. List two examples of solid shapes. _____ , _____

1.04 Rectangles and squares can be measured using their length and their

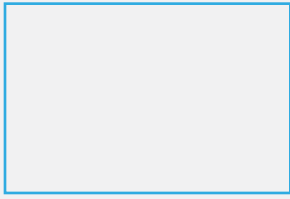
_____ .

1.05 How many dimensions does a plane shape have? _____

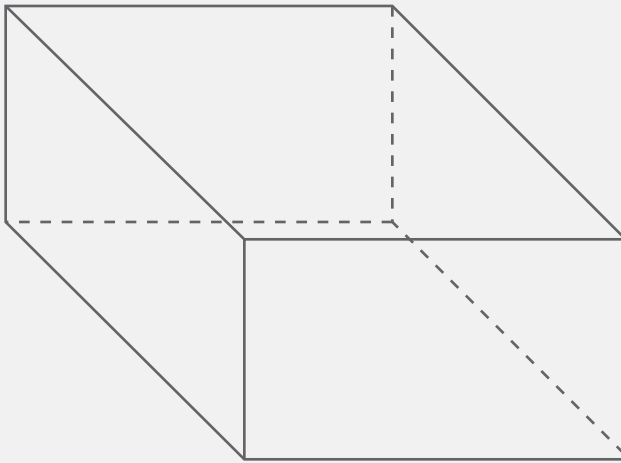
1.06 How many dimensions does a solid shape have? _____

1.07 Write the dimensions of this rectangular polygon in inches. Measure with a

ruler.



1.08 Write the dimensions of this rectangular solid in inches. Measure with a ruler.



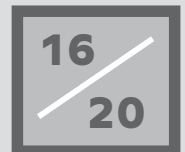


Teacher check:

Score _____

Initials _____

Date _____





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