



Geometry is the study of shapes. We use knowledge of geometry in our daily lives, often without knowing it. When we measure the size of a rug, we use geometry. When we give someone directions on how to get to our home, we use geometry. Scientists use geometry to help put rockets on the moon. Artists use geometry in any painting or sculpture that involves design. The elements of geometry are all around us.

The basic shapes in geometry are the **point**, the **line**, and the **plane**.

In this book we will put these basic shapes together in ways that form new figures. We will name these new figures and study relations that exist among them.

Geometry is the study of

- a. the earth's surface.
- b. shapes.

b.

Check the *basic* shapes in geometry.

- a. line
- b. circle
- c. point
- d. triangle
- e. plane

a.

c.

e.

The first basic shape is the **point**. A point is an exact, fixed location.

A point has no length, no width, and no thickness. This is a picture of a point.



dot

One way to show a point is to make a < dot scribble > with your pencil on a piece of paper.

a.

A dot, though, is not *exactly* a point because

- a. a dot has some length, width, and thickness although not much.
- b. a dot is too small to be a point.

We cannot draw a point, so we draw a dot instead and say that the dot **represents** the point.



points

These two dots represent two different _____.



5

How many points do these dots represent? _____

We will use capital letters to name points.

A



B



B

These are points **A** and _____.

The second basic shape in geometry is the **straight line**.

Which best represents a straight line?

- a. the edge of a piece of paper
- b. the edge of a coin



The above drawing represents a straight line. The drawing is about 3 inches long. A true straight line, however, extends both to the left and to the right without ever ending.

The picture of the line is drawn straight between the two points **A** and **B** and continues on either side. true
false

We put arrow heads at either end of the picture to indicate that the line

- a. is really a double-headed arrow.
- b. continues in both directions without ever ending.

In geometry, when we refer to a *line*, we mean a *straight line*.

A key characteristic of a line in geometry is that

- a. it is straight.
- b. it makes a gradual curve.



C

D

Draw a picture of a line through points **C** and **D**.

Between any two points we can always draw a line. true
false

