Building Blocks of Geometry

1. Opener

a) Evaluate: $b^2 - 3$ for b = -4

b) Simplify: $5^2 - 3 \cdot 4 - (2 + 7)$

c) Simplify: $-5^2 + (3 - 5)^3$

d) What was the most popular boy name in 1998 (the year you were born)? What was the most popular girl name?

POINT

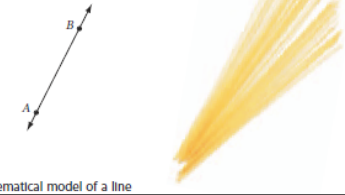
An undefined term thought of as a location with no size or dimension.

A tiny seed is a physical model of a point. A point, however, is smaller than any seed that ever existed.

Mathematical model of a point

LINE

An undefined term thought of as a straight, continuous arrangement of infinitely many points extending forever in two directions.

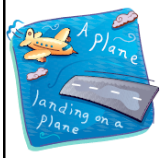


A piece of spaghetti is a physical model of a line. A line, however, is longer, straighter, and thinner than any piece of spaghetti ever made.

Mathematical model of a line

PLANE

An undefined term though of as a flat surface that extends indefinitely along it's edges.

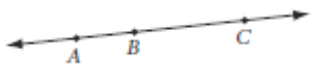


Mathematical model of a plane

A flat piece of rolled-out dough is a physical model of a plane. A plane, however, is broader, wider, and thinner than any piece of dough you could ever roll.

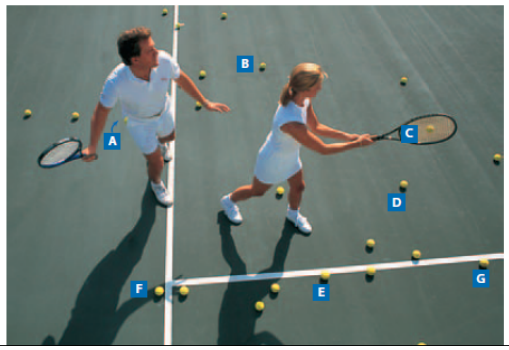
COLLINEAR

On the same line.



Points A, B, and C are collinear.

COLLINEAR



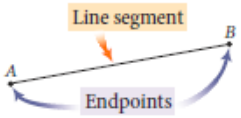
COPLANAR

On the same plane.

Points *D*, *E*, and *F* are coplanar.

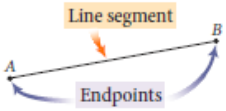
LINE SEGMENT

Two points and all the points between them that are collinear with the two points.



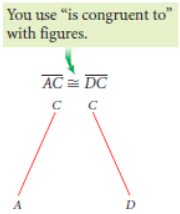
END POINTS

The point at either end of a segment or an arc, or the first point of a ray.



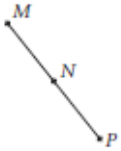
CONGRUENT

Identical in shape and size.



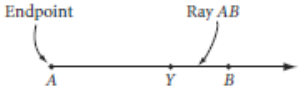
BISECTS

To divide into two congruent parts.



RAY

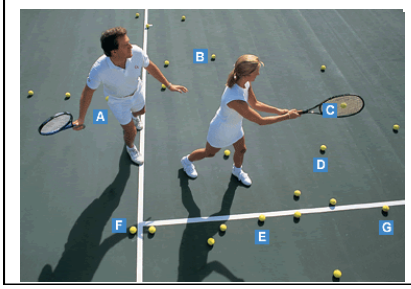
A point on a line, and all the points of the line that lie on one side of this point.



3. Classwork

Which tennis balls are coplanar?

Ball A is in the pocket of the man. Ball C is on the woman's racquet. All other balls are on the tennis court. Name three balls that are collinear. Name three balls that are coplanar but not collinear. Name four balls that are not coplanar.



4. Classwork

★ **MULTIPLE CHOICE** Which statement about the diagram at the right is true?

Ⓐ A, B, and C are collinear.

Ⓑ C, D, E, and G are coplanar.

Ⓒ B lies on $\overrightarrow{GE}$.

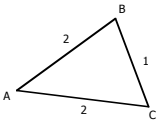
Ⓓ $\overrightarrow{EF}$ and $\overrightarrow{ED}$ are opposite rays.

5. Notes

Equal
=
Numbers
AB - length

Congruent
≅
Shapes
$\overline{AB}$

Ex:



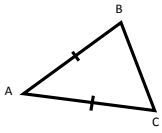
What we CAN write:

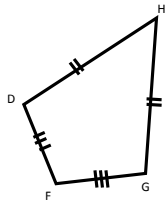
$AB = 2$
$AB = AC$
$\overline{AB} \cong \overline{AC}$

What we CAN'T write:

$\overline{AB} = 2$
$AB \cong AC$
$\overline{AB} = \overline{AC}$
$AC = BC$

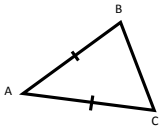
6. Notes

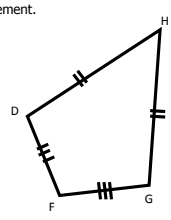




7. Classwork

Write down every congruency statement.

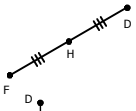




8. Notes

Midpoint: The point on a segment that's the same distance from both endpoints.

D is the midpoint of $\overline{BC}$



H is the midpoint of $\overline{FD}$

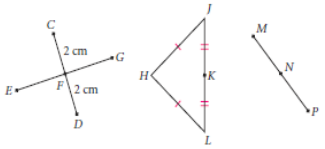
A is the midpoint of $\overline{DE}$

9. Practice

Study the diagrams below.

a. Name each midpoint and the segment it bisects.

b. Name all the congruent segments. Use the congruence symbol to write your answers.



10. Homework

- **Homework #1 Q1**

*** See Q1 Homework Assignments Paper in your binder**