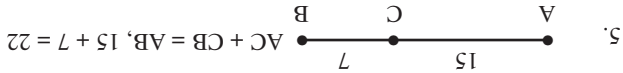
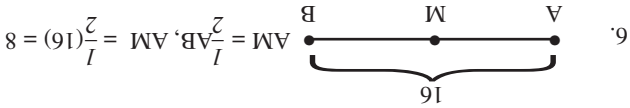


13. 4:  $\overleftrightarrow{FG}, \overleftrightarrow{EH}, \overleftrightarrow{DH}, \overleftrightarrow{CG}$   
 12. 4:  $\overleftrightarrow{AD}, \overleftrightarrow{BC}, \overleftrightarrow{AE}, \overleftrightarrow{FB}$   
 11. 3:  $\overleftrightarrow{CD}, \overleftrightarrow{GH}, \overleftrightarrow{EF}$   
 10. D  
 9. A, B, C  
 8. B

7. Since a point has no dimensions, all of these contain an infinite number of points.



4. 
$$\left(-\frac{3}{2} + \frac{1}{5} + \frac{2}{8}, \frac{2}{13}, \frac{2}{8}\right) = \left(-\frac{2}{13}, \frac{2}{13}, \frac{2}{8}\right) = \left(-\frac{2}{13}, \frac{2}{13}, \frac{2}{8}\right) = \left(-\frac{2}{13}, \frac{2}{13}, \frac{2}{8}\right) = \left(-\frac{2}{13}, \frac{2}{13}, \frac{2}{8}\right) = \left(-\frac{2}{13}, \frac{2}{13}, \frac{2}{8}\right)$$

3. 
$$\left(-\frac{4}{2}, \frac{2}{7} + \frac{3}{10}\right) = \left(\frac{2}{2}, \frac{2}{10}\right) = (1, \frac{5}{5})$$

2. 
$$-\frac{7}{5} - \frac{2}{-2} = -1$$

1. 
$$|-8 - (-3)| = |-5| = 5$$

# GEOMETRY

## The Complete Course

Lesson One

# Fundamental Geometric Concepts

KA8461

## Worksheet

For a free complete catalog of educational videos contact:



**TMW MEDIA GROUP**

2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax (310) 574-0886

Email: info@tmwmedia.com

Web: www.tmwmedia.com

Producers & Distributors of Quality Educational Media

©2000 The Teaching Company L. P. and TMW Media Group

Instructors may duplicate the worksheets as needed

## I. VIDEOTAPE FOLLOW-UP QUESTIONS

- I. Introduction.
- II. Points.
  - A. Describing and naming a point
  - B. Dimension of a point
  - C. Given any two points there is unique distance between them. (P1-1)
- III. Lines.
  - A. Describing and naming a line
  - B. Dimension of a line
  - C. Relationship to points
    1. Collinear points
    2. Non-collinear points
  - D. Relationships among lines
    1. Parallel
    2. Intersecting
      - a) perpendicular
      - b) oblique
    3. Skew
- IV. Planes.
  - A. Describing and naming a plane
  - B. Dimensions of a plane
  - C. Relationships among planes
    1. Parallel
    2. Intersecting
  - D. Relationship to points
    1. Coplanar points
    2. Noncoplanar points
  - E. Relationships to lines
    1. Included
    2. Intersecting
      - a) perpendicular
      - b) oblique
    3. Parallel
- V. Space.
  - A. Definition of space
  - B. Relationship to points, lines, planes
- VI. Subsets of lines.
  - A. Points
  - B. Rays
  - C. Segments
    1. Congruent
      - a) definition

- b) symbol
2. Congruent segments
3. Midpoint of a segment
  - a) Any segment has exactly one midpoint. (P1-2)
  - b) Midpoint theorem: If M is the midpoint of a segment AB then:  
$$2AM = AB \quad 2MB = AB$$

and                      and

$$AM = \frac{1}{2}AB \quad MB = \frac{1}{2}AB \quad (T1-1)$$
4. Bisector of a segment
  - a) Point
  - b) Line
  - c) Segment
  - d) Ray
  - e) Plane

## VII. System of Linear Measurement.

- A. Ruler postulate
  1. Any two distinct points on a line can be assigned coordinates 0 and 1.
  2. There is one-to-one correspondence between the real numbers and all points of the line.
  3. The distance between two distinct points of the line is the absolute value of the difference of their coordinates. (P1-3)
- B. Segment addition to postulate: If C is between A and B, then  $AC + CB = AB$ . (P1-4)

## II. SUPPLEMENTARY EXERCISES

1. What is the distance between two points on a line if their coordinates are -8 and +3?
2. What is the midpoint of a line segment whose coordinates are -7 and 5?
3. What is the midpoint of a line segment whose coordinates in a plane are (-4, 7) and (6, 3)?
4. What is the midpoint of a line segment whose coordinates in a space are (-3, 5, -2) and (1, 8, -6)?
5. If points A, B, and C are collinear with point C between points A and B,  $AC = 15$  and  $CB = 7$ , what is the measure of AB ?
6. Given  $\overline{AB}$  with midpoint M. If  $AB = 16$ , then what is the measure of AM?
7. How many points are contained in (a) a line segment; (b) a ray; (c) a line?
8. If the ceiling and floor of a room are parallel, any line in the ceiling of the room (a) is skew to the floor (b) is parallel to the floor (c) will eventually intersect the floor
9. If a wall and floor of a room are perpendicular, a line in the wall could (a) be parallel to the floor (b) intersect the floor obliquely (c) be perpendicular to the floor (d) be skew to the floor
10. Two lines which are not coplanar would be (a) perpendicular lines (b) intersecting lines (c) parallel lines (d) skew lines

11-13. Consider a rectangular solid (box-shaped figure) with its upper corners named A, B, C, D respectively and its lower corners named E, F, G, H respectively with point A directly above point E, point B directly above point F, etc. How many edges of this rectangle solid would be:

11. Parallel to  $\overleftrightarrow{AB}$  \_\_\_\_\_
12. Perpendicular to  $\overleftrightarrow{AB}$  \_\_\_\_\_
13. Skew to  $\overleftrightarrow{AB}$  \_\_\_\_\_