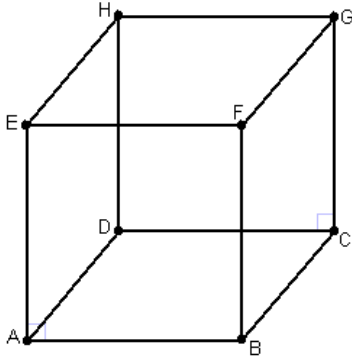


## Basic Notions and Angles (Section 11.1)

1. For the figure below, answer the following:



**\*Note:** This figure represents a three-dimensional cube.

- Name two lines that are parallel.
  - Name two lines that are perpendicular.
  - Name two lines that are skew.
  - Name a plane that is not defined by one of the faces.
2. If A, B, C, and D are collinear points, how many different ways can we name the line?

Try to generalize your result. That is, if we have  $n$  collinear points, how many different ways can we name the line?

3. How many lines can be drawn through 10 points, no 3 of which are collinear?

HINT: Start by answering the same question for 2 points, 3 points, 4 points, and 5 points and then look for the pattern.

Try to generalize your result. That is, how many lines can be drawn through  $n$  points, no 3 of which are collinear?

### **Properties of Lines and Planes**

What do we need to determine a line?

What do we need to determine a plane?

## Angles

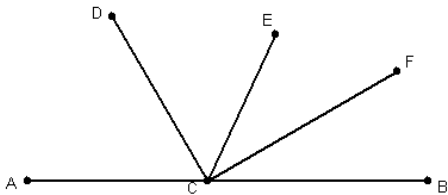
### Angles as Movement

The static definition of an angle is not easy for children to grasp. Children more easily understand angles as movement.

### Examples:

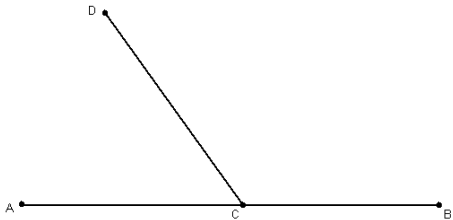
### Exercises

1. In the following figure,  $\angle DCE = 55^\circ$ ,  $\angle ACF = 150^\circ$ , and  $\angle DCB = 120^\circ$ . Find the measure of the following angles.



$\angle ACD =$  \_\_\_\_\_ and  $\angle ECF =$  \_\_\_\_\_

2. In the following figure, the measure of  $\angle ACD$  is 9 degrees less than half the measure of  $\angle DCB$ . Determine the measure of both angles.



$\angle ACD =$  \_\_\_\_\_ and  $\angle DCB =$  \_\_\_\_\_

## Degrees, Minutes, and Seconds

### Why minutes and seconds?

The arc-minute, or one minute of an angle, is commonly found in the firearms industry concerning the accuracy of rifles. One arc-minute subtends approximately one inch at 100 yards. A shooter can readjust their rifle scope by measuring the distance in inches the bullet hole is from the desired impact point and adjusting that many arc-minutes in the same direction.

### Examples

a. Convert  $8.42^\circ$  to degrees, minutes, and seconds.

b. Convert  $29^\circ 47' 15''$  to degrees.

c. Perform each of the following operations. Leave your answer in simplest form.

$$\begin{array}{r} 34^\circ \quad 27' \quad 45'' \\ + \quad 57^\circ \quad 55' \quad 25'' \\ \hline \end{array}$$

$$\begin{array}{r} 52^\circ \quad 23' \quad 15'' \\ - \quad 35^\circ \quad 27' \quad 18'' \\ \hline \end{array}$$

Homework: Page 693: 3-7, 9