

# Chapter 10 Topics in Analytic Geometry

## Section 10.1 Lines

**Objective:** In this lesson you learned how to find the inclination of a line, the angle between two lines, and the distance between a point and a line.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Inclination** (of a nonhorizontal line)

**Angle between two lines**

### I. Inclination of a Line (Pages 728–729)

Every nonhorizontal line must \_\_\_\_\_.

The angle formed by such an intersection determines the \_\_\_\_\_ of the line.

If a nonvertical line has inclination  $\theta$  and slope  $m$ , then  $m =$  \_\_\_\_\_.

**Example 1:** Find the inclination of the line given by

$$y = \frac{1}{2}x + 5.$$

#### *What you should learn*

How to find the inclination of a line

### II. The Angle Between Two Lines (Pages 729–730)

If two nonperpendicular lines have slopes  $m_1$  and  $m_2$ , the angle between the two lines is given by

$\tan \theta =$  \_\_\_\_\_

**Example 2:** Find the angle between the two lines:  $y = -4x + 1$  and  $y = 3x - 2$ .

#### *What you should learn*

How to find the angle between two lines

**III. The Distance Between a Point and a Line**

(Pages 730–731)

The distance between a line and a point not on the line is defined to be . . .

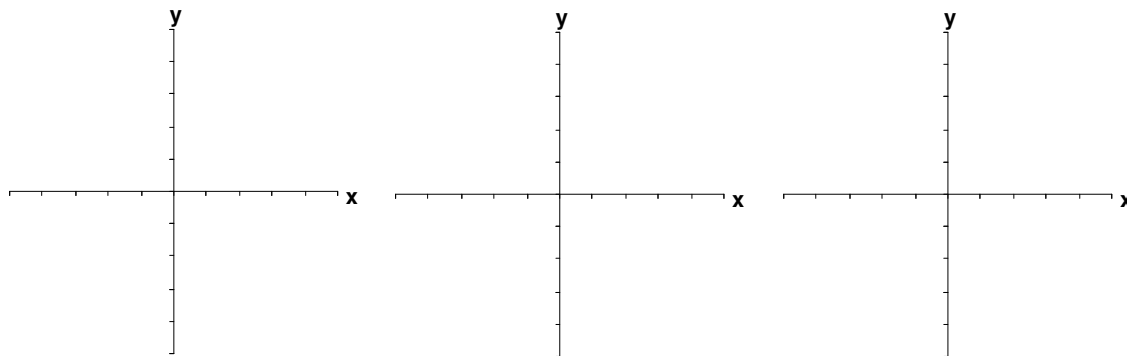
*What you should learn*  
 How to find the distance between a point and a line

The distance between the point  $(x_1, y_1)$  and the line  $Ax + By + C = 0$

is  $d =$  \_\_\_\_\_ .

**Example 3:** Find the distance between the point  $(1, 1)$  and the line  $y = 6 - 3x$ .

**Additional notes**



**Homework Assignment**

Page(s)

Exercises