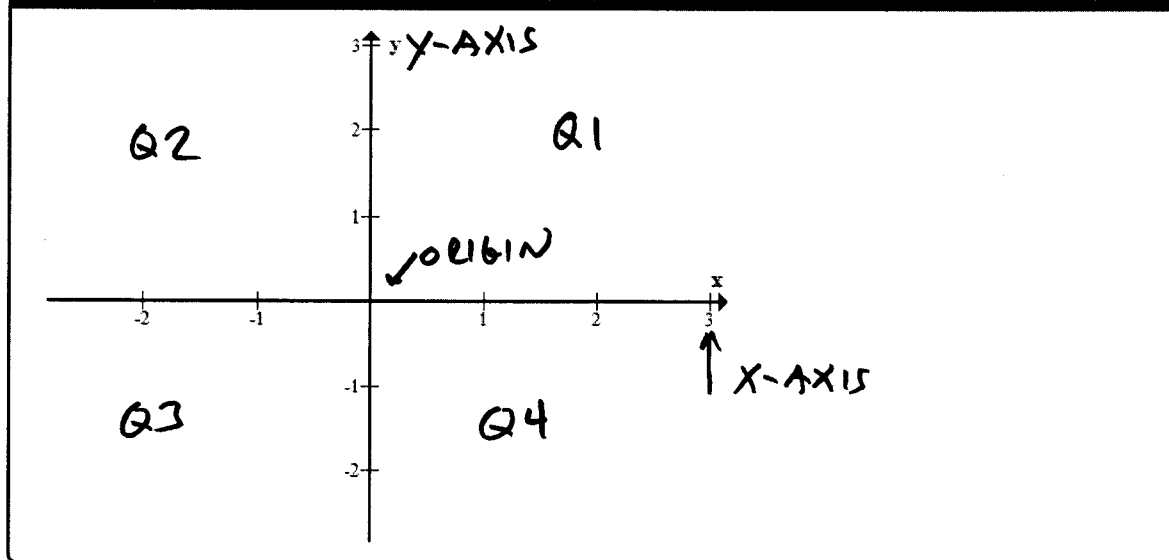


MATH 210 FINITE MATHEMATICS

BRIAN VEITCH • FALL 2016 • NORTHERN ILLINOIS UNIVERSITY

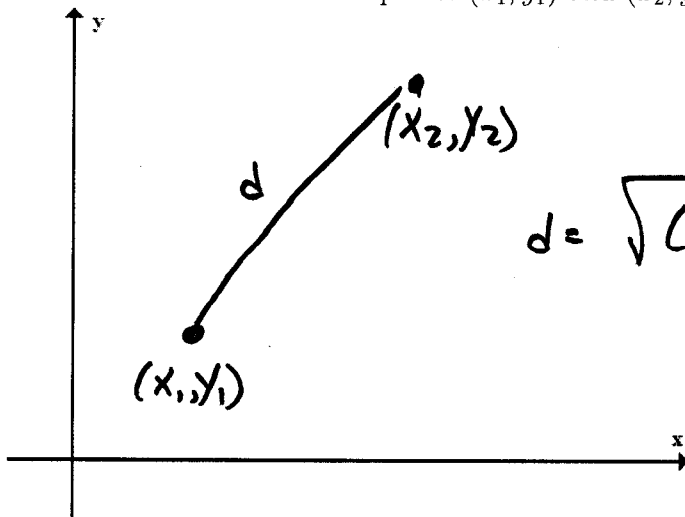
1.1 The Cartesian Coordinate System

Definition 1: Cartesian Coordinate System

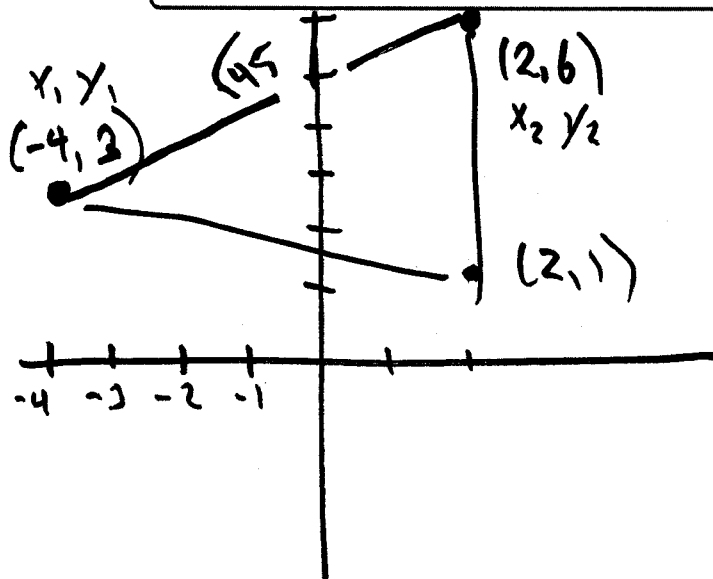


Definition 2: Distance Formula

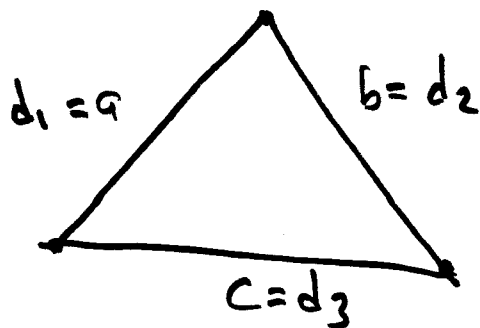
The distance d between two points (x_1, y_1) and (x_2, y_2) is



$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Example 1Find the distance between points $(-4, 3)$ and $(2, 6)$.

$$\begin{aligned}
 d &= \sqrt{(2 - (-4))^2 + (6 - 3)^2} \\
 &= \sqrt{6^2 + 3^2} \\
 &= \sqrt{36 + 9} \\
 &= \sqrt{45} \\
 &\approx 6.708
 \end{aligned}$$

Definition 3: TrianglesA triangle is a right triangle if $a^2 + b^2 = c^2$ 

$$d_1^2 + d_2^2 = d_3^2$$

OR

$$d_1^2 + d_3^2 = d_2^2$$

OR

$$d_2^2 + d_3^2 = d_1^2$$

LARGEST