Preliminaries and Objectives

Preliminaries

- Cartesian Coordinate System
- Slope Formula
- Pythagorean Theorem

Objectives

- Write equations involving arbitrary points
Example 1

\[(2, 1) \quad (6, 4)\]

\[
slope = \frac{4 - 1}{6 - 2} = \frac{3}{4}
\]
Arbitrary Points

\[(2, 1)\]

\[\text{slope} = \frac{y - 1}{x - 2}\]
Arbitrary Points

\[(2, 1)\]

\[(x, y)\]

\[
slope = \frac{y - 1}{x - 2}
\]
Arbitrary Points

\[ \frac{2}{3} = \frac{y - 1}{x - 2} \]

University of Minnesota  Introduction to Analytic Geometry
Find the set of all points that are a distance of 3 from the point \((-2, 4)\).
Find the set of all points that are a distance of 3 from the point \((-2, 4)\).
Equation of a Circle

Find the set of all points that are a distance of 3 from the point \((-2, 4)\).

\[(x + 2)^2 + (y - 4)^2 = 3^2\]
Recap

- Let \((x, y)\) be an arbitrary point
- Write equations corresponding to the geometric description
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