Math122 College Algebra

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2.2
Graph of an Equation

- The graph of an equation in x & y is all points (x,y) in the coordinate plane that satisfy the equation

- Sketch the graph of $y - 3x = -2$

Solution

1. Solve the equation for y
2. Build a table of points (x,y) that satisfy the equation
3. Graph the points

Problem

- Sketch the graph of $y = |x|$

Intercepts

- x-intercept is the point where the graph intersects the x-axis (may intercept the x-axis in 0, 1, 2, … places depending on the equation)

- Find the x-intercepts by setting y to 0 and solve for x

Intercepts

- y-intercept is the point where the graph intersects the y-axis (may intercept the y-axis in 0, 1, 2, … places depending on the equation)

- Find the y-intercepts by setting x to 0 and solve for y

Problem

- Sketch the graph of $y = x^2 - 2$ by finding the x and y-intercepts and enough other points on the parabola to accurately sketch the graph.
- Identify the x-intercepts and the y-intercepts

Find a Graph's Equation

- Sometimes we want to find the graph of an equation

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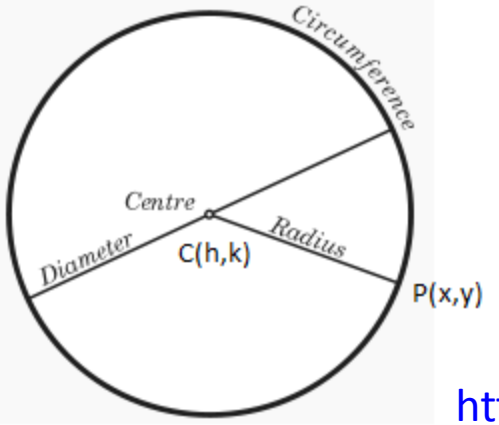
Equation of a Circle

- Suppose we have a circle with center C(h,k) and a point on the circle P(x,y). What is the length of the radius.
- $radius =$



http://en.wikipedia.org/wiki/Circle

Equation of a Circle

- An equation of the circle (in standard form) with center (h, k) and radius r is

$$(x - h)^2 + (y - k)^2 = r^2$$

- A circle whose center is at the origin has an equation

$$x^2 + y^2 = r^2$$

Problem

1. Graph $x^2 + y^2 = 4$

2. Graph $(x - 2)^2 + (y + 2)^2 = 4$

Problem

1. Find the equation of a circle with radius 4 and center (-5,5)

2. Find an equation of a circle that has points P(1,8) and Q(5,6) as the endpoints of a diameter

Problem

1. Show that the equation $x^2 + y^2 + 2x - 6y + 7 = 0$ represents a circle.

2. What is the center of the circle?

3. What is the radius of the circle?