

QUESTIONS:

NOTES:

The Equation of a Circle

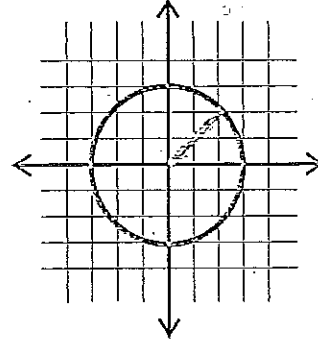
Circle: $(x-h)^2 + (y-k)^2 = r^2$

Given : Circle C

Let (h,k) be the center of circle C.

Let (x, y) be any point on the circle

Let r = the radius of circle C



The standard form or center-radius form equation of a circle:

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

Where (h, k) is the center and r is the radius.

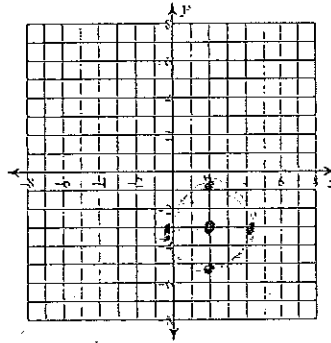
Example 1. Write an equation with the center of $(13, -12)$ and radius of 4:

$$(x-13)^2 + (y+12)^2 = 4^2$$

Examples of graphing equations

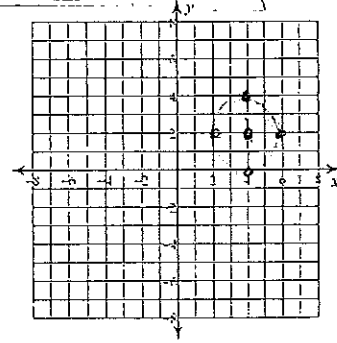
$$(x-2)^2 + (y+3)^2 = 5$$

Center
 $(2, -3)$
 $r = \sqrt{5}$
 ≈ 2.24



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

Center
 $(4, 2)$
 $r = 2$



Completing the Square Example Problem

Complete the square to find the center and the radius of the circle.

$$4x^2 + 4y - 16x + 24y - 36 = 0$$