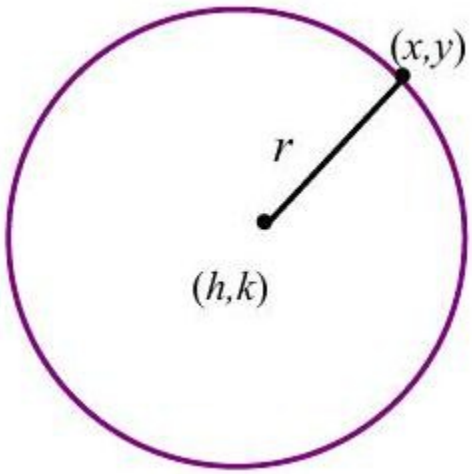
Math 1060 ~ Trigonometry

26.5 Circles

A **circle** with center (h, k) and radius $r > 0$ is the set of all points (x, y) in the plane whose distance to (h, k) is r.



The **Standard Equation of a Circle** with center at (h, k) and radius $r > 0$ is

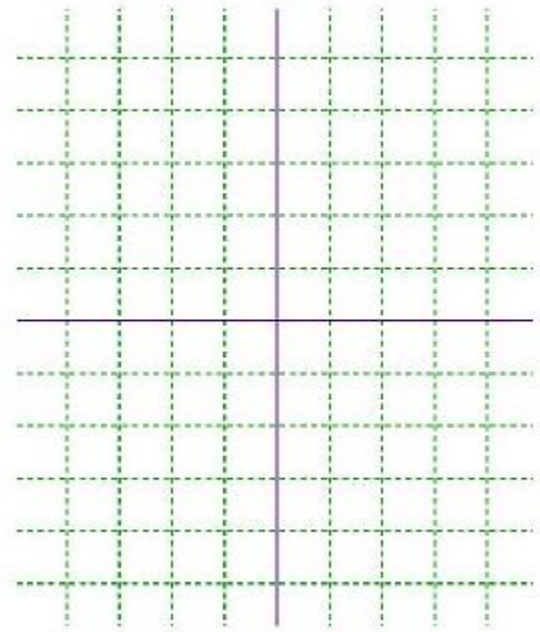
$(x - h)^2 + (y - k)^2 = r^2$.

EX 1

Write an equation of a circle with center at $(2, -1)$ and radius 5 .

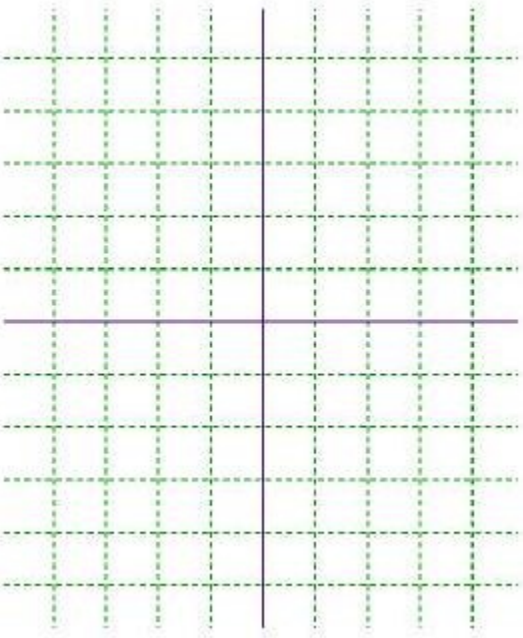
EX 2

Find the center and radius of the circle given by the equation $(x+4)^2+(y+3)^2=9$. Graph the circle.



EX 3

Put this equation in standard form and graph the circle.
$3x^2+3y^2+6x-12y-60=0$



EX 4

Select the equations which might be a circle, put the equation in standard form and determine the center and radius.

4a)

$x^2 - y^2 + 3x - 2y - 6 = 0$

4b)

$x^2 + 6x - 2y + 6 = 0$

4c)

$2x^2 + 2y^2 - 4x - 10 = 0$

4d)

$3x + 2y - 8 = 0$

4e)

$x^2 + y^2 + 9 = 0$

4f)

$3x^2 + 2y^2 + 6x - 12y - 6 = 0$

EX 5

Write an equation of a circle with the points $(-2,6)$ and $(3,-1)$ as endpoints of the diameter.