

Precalc 10.2

Use and determine standard form for the equation of a circle*

*Alg 2 Ch. 10

Use and determine general form for the equation of a circle*

conic models
activity

Graph circles*

Write the equation of a circle given three points on the circle

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

conic section

ellipse

parabola

hyperbola

degenerate conic

solve systems of equations

**Standard
Form of the
Equation of
a Circle**

The standard form of the equation of a circle with radius r and center at (h, k) is

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

**General
Form of
the Equation
of a Circle**

The general form of the equation of a circle is

$$\underline{x^2} + \underline{y^2} + \underline{Dx} + \underline{Ey} + \underline{F} = 0,$$

where D , E , and F are constants.

C is involved when there is an xy term
(rotation) later in the chapter.

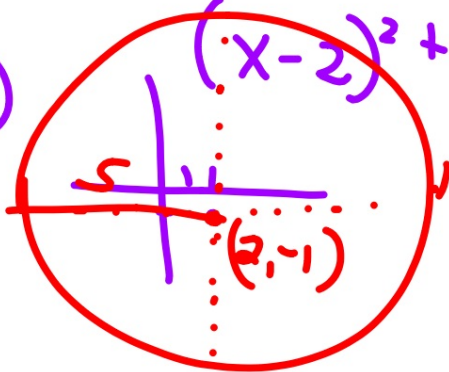
$$x^2 + y^2 - 4x + 2y - 20 = 0$$

$$(x^2 - 4x + 4) + (y^2 + 2y + 1) = 20 + 4 + 1$$

$$(x-2)^2 + (y+1)^2 = 25$$

$$C(2, -1)$$

$$r = 5$$



Alg 2

Matrix equations

A=coefficient matrix

B=variable matrix

C=constant matrix

$$2x+y = 3$$

$$x-y = 6$$

[A] ~~[B]~~ ~~[C]~~

$$[A] [] = [B]$$

$$A^{-1} * B$$

Sketch

Set up equations & simplify

Use technology to solve

Answer the question

- 4** Write the standard form of the equation of the circle that passes through the points at $(5, 3)$, $(-2, 2)$, and $(-1, -5)$. Then identify the center and radius of the circle.

WB 10.2