

Equations of Circles

Standard form

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

what value will
make each equal
to 0

$C: (h, k)$

$r = \text{radius}$

ex. 1

$$(x-1)^2 + (y+3)^2 = r^2$$
$$= 16$$

$$C: (1, -3)$$

$$r = \sqrt{16} = 4$$

$$(x + 12)^2 + (y - 6)^2 = r^2 = 30$$

$$C : (-12, 6)$$

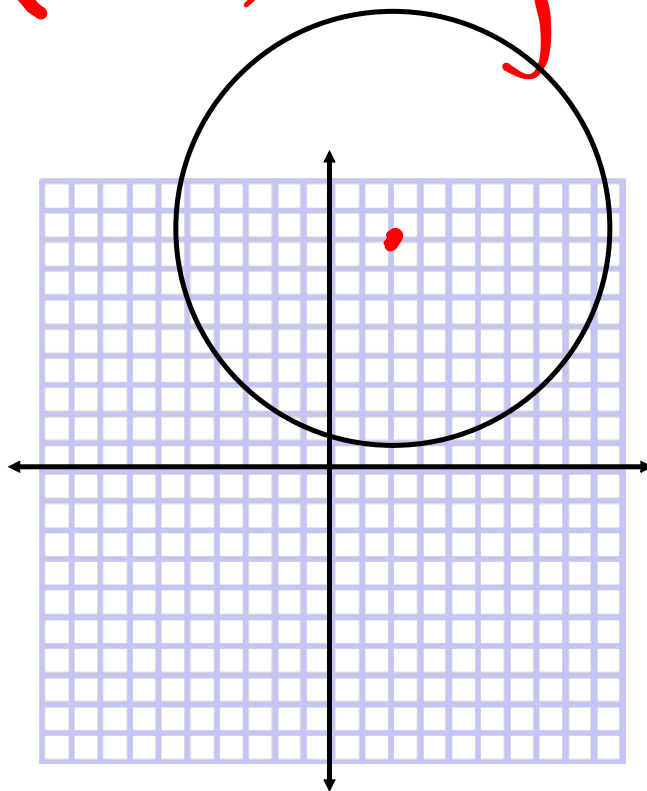
$$r = \sqrt{30} \text{ or } 5.48$$

ex. 3

$$C: (2, 8)$$

$$r = 24$$

$$(x - 2)^2 + (y - 8)^2 = 576$$



ex. 4

C: (0, 7)

$r = \sqrt{8}$

$(\sqrt{8})^2$

r^2

$$(x-0)^2 + (y-7)^2 = 8$$
$$x^2 + (y-7)^2 = 8$$

ex. 5
 $C: (2, -3)$ * from Standard to General = r^2

$$r = 7$$

$$(x-2)^2 + (y+3)^2 = 49$$

$$(x-2)(x-2) + (y+3)(y+3) = 49$$

$$x^2 - 4x + 4 + y^2 + 6y + 9 = 49$$

$$x^2 - 4x + 4 + y^2 + 6y + 9 - 49 = 49 - 49$$

$$x^2 - 4x + 4 + y^2 + 6y - 36 = 0$$

$$x^2 + y^2 - 4x + 6y - 36 = 0$$

6.

$$C: (0, 4)$$

$$r = \sqrt{3}$$

write in
general
form

$$x^2 + (y-4)^2 = 3$$

$$x^2 + (y-4)(y-4) = 3$$

$$x^2 + y^2 - 8y + 16 = 3$$

★ in general form!

$$x^2 + y^2 - 8y + 13 = 0$$