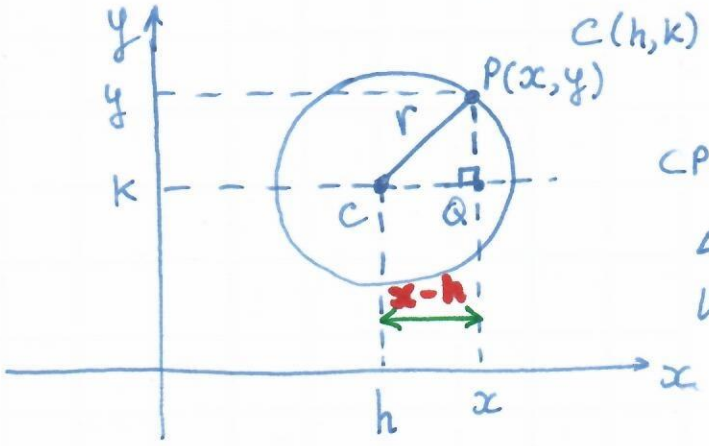
Circle Centered at (h, k)



$CP = r \leftarrow$ fixed

$\triangle CPQ$ is a RAT.

Use P.T. $CP^2 = CQ^2 + QP^2$

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

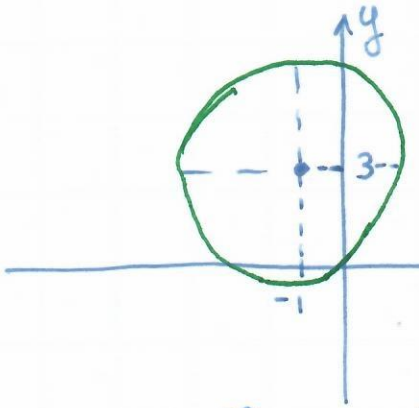
$$\boxed{(x-h)^2 + (y-k)^2 = r^2}$$ ← Equation of a circle centered @ (h, k)

Example: Describe the points that satisfy

$(x-(-1))$

$$(x+1)^2 + (y-3)^2 = 10$$

- circle centered @ $(-1, 3)$
- radius is $\sqrt{10}$: $3 < \sqrt{10} < 4$



H: $(-1, 3+\sqrt{10})$

L: $(-1, 3-\sqrt{10})$

Lm: $(-1-\sqrt{10}, 3)$

Rm: $(-1+\sqrt{10}, 3)$

Is $(2, 5)$ on the circle?

LS	RS
$(x+1)^2 + (y-3)^2$	10
$(2+1)^2 + (5-3)^2$	10
$3^2 + 2^2$	10
$9 + 4$	10
13	10

$LS \neq RS$ → $(2, 5)$ is not on the circle.