## Unit 6.5

## Equations of Circles

Equations of circle:
The standard equation of a circle with radius $r$ and center ( $h, k$ ).
$(x-h)^{2}+(y-k)^{2}=r^{2}$
An example is shown at the right:

| $\begin{aligned} & (x-h)^{2}+(y-k)^{2}=r^{2} \\ & (x-2)^{2}+(y--1)^{2}=4^{2} \\ & (x-2)^{2}+(y+1)^{2}=4^{2} \end{aligned}$ |  |  |  |  |  |
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Given center of circle and point on circle, find radius Use distance between two points formula:
distance $($ radius $)=\sqrt{\left(x_{2}-x_{1}\right)^{2}+\left(y_{2}-y_{1}\right)^{2}}$

