Write an equation of a circle
Given:
The Center & a Point

Graph a Circle

Write an equation of a circle
Given:
The Center & the Radius
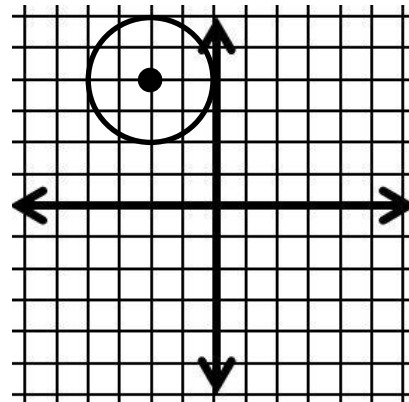
Write an equation of a circle
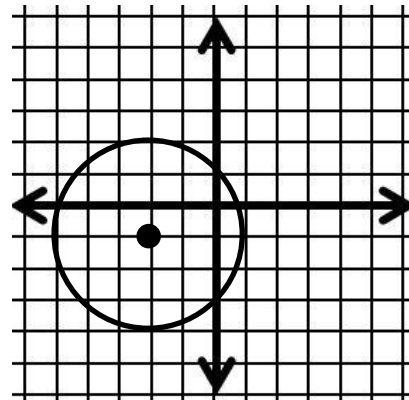Given:
A Graph

Example 1:
 Center: (2,-3) & Radius: 4
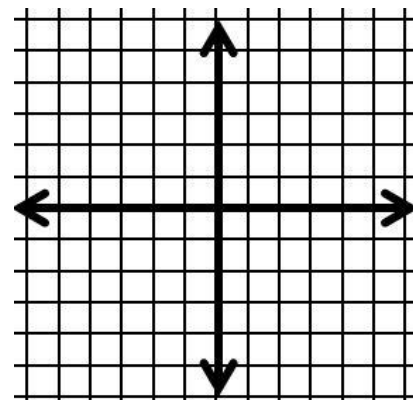
Example 2:
 Center: (0,-5) & Radius: 6

Example 3:

Example 4:

Example 5:
 Center: (2,3) & Point (-3,1)

Example 6:
 Center: (-2,-1) & Point (0,6)

Example 7:
 $(X - 3)^2 + (Y - 1)^2 = 9$
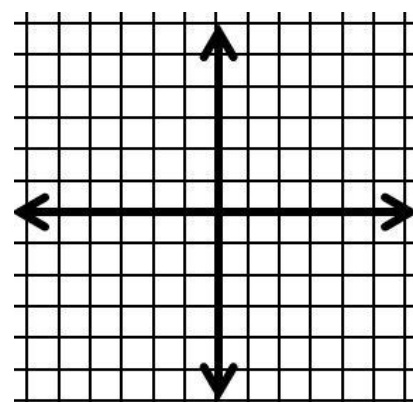
Example 8:
 $(X - 2)^2 + (Y + 1)^2 = 25$

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Example 1:
Center: (2,-3) & Radius: 4

$(h,k) = (2,-3)$
$r = 4$

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

$\boxed{(x - 2)^2 + (y + 3)^2 = 16}$

Example 2:
Center: (0,-5) & Radius: 6

$(h,k) = (0,-5)$
$r = 6$

$(x - h)^2 + (y - k)^2 = r^2$
$(x - 0)^2 + (y - (-5))^2 = 6^2$
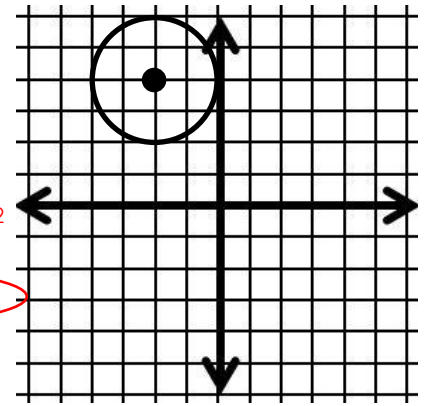
$\boxed{(x)^2 + (y + 5)^2 = 36}$

Example 3:
$(h,k) = (-2,4)$
$r = 2$

$(x - h)^2 + (y - k)^2 = r^2$
$(x + 2)^2 + (y - 4)^2 = 2^2$

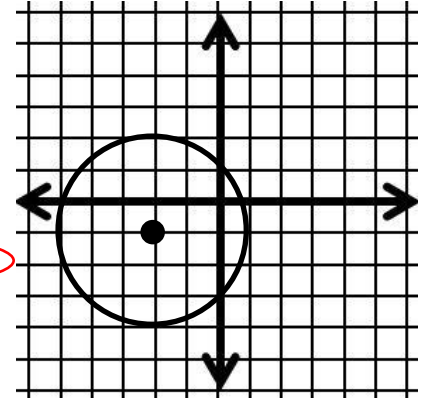$\boxed{(x + 2)^2 + (y - 4)^2 = 4}$

Example 4:
$(h,k) = (-2,-1)$
$r = 3$

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

$\boxed{(x + 2)^2 + (y + 1)^2 = 9}$

Example 5:
Center: (2,3) & Point (-3,1)

$\sqrt{(x - h)^2 + (y - k)^2} = r^2$
$\sqrt{(-3 - 2)^2 + (1 - 3)^2} = r^2$
$\sqrt{(-5)^2 + (-2)^2} = r^2$
$\sqrt{25 + 4} = r^2$
$\sqrt{29} = r^2$

$(x - h)^2 + (y - k)^2 = r^2$
$\boxed{(x - 2)^2 + (y - 3)^2 = 29}$

Example 6:
Center: (-2,-1) & Point (0,6)

$\sqrt{(x - h)^2 + (y - k)^2} = r^2$
$\sqrt{(0 + 2)^2 + (6 + 1)^2} = r^2$
$\sqrt{(2)^2 + (7)^2} = r^2$
$\sqrt{4 + 49} = r^2$
$\sqrt{54} = r^2$

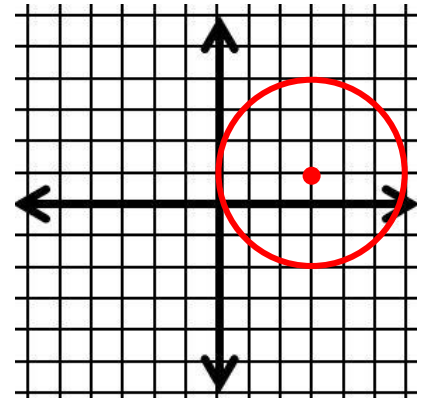$(x - h)^2 + (y - k)^2 = r^2$
$\boxed{(x + 2)^2 + (y + 1)^2 = 54}$

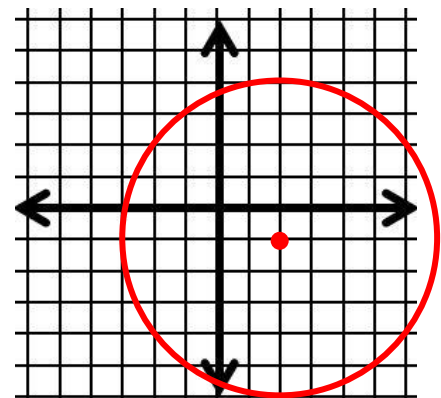# Example 7:
$(X - 3)^2 + (Y - 1)^2 = 9$

$(h, k) = (3,1)$
$r = 3$

Example 8:
$(X - 2)^2 + (Y + 1)^2 = 25$

$(h, k) = (2,-1)$
$r = 5$

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Directions:

Print pages 1 & 2 front to back (3 & 4 for the answer key). On my printer, I use the option to print double-sided and to flip along the **short** edge. Every printer is different, you may need to play around with your print settings.

The final product should look like this: