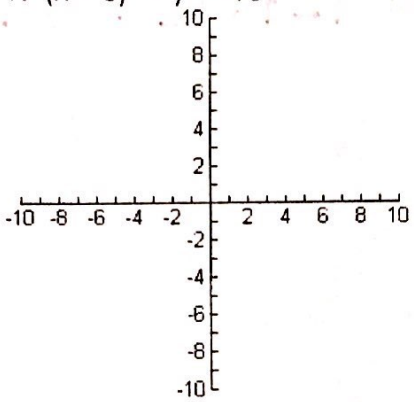
Graphing Circles

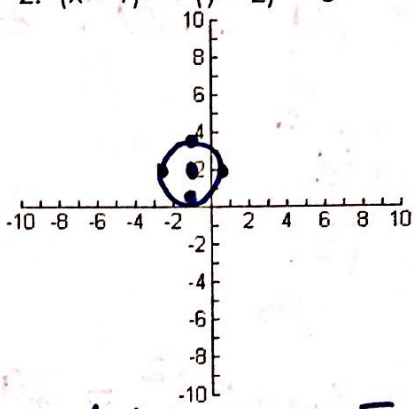
$(x-h)^2 + (y-k)^2 = r^2$

Write the equation in standard form and graph the equation. Identify the important characteristics.

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

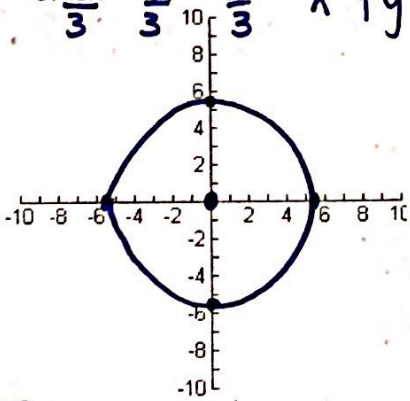


2. $(x + 1)^2 + (y - 2)^2 = 3$



C: (-1, 2) $r = \sqrt{3} = 1.73$

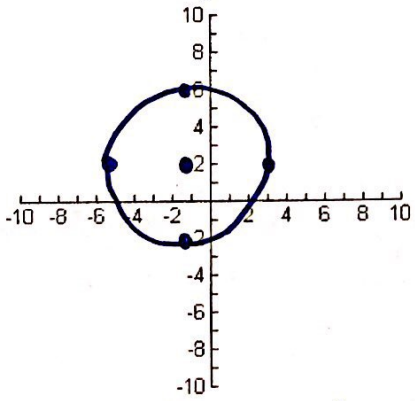
3. $\frac{3x^2}{3} + \frac{3y^2}{3} = \frac{81}{3}$ $x^2 + y^2 = 27$



C: (0, 0)
$r = 5.2$

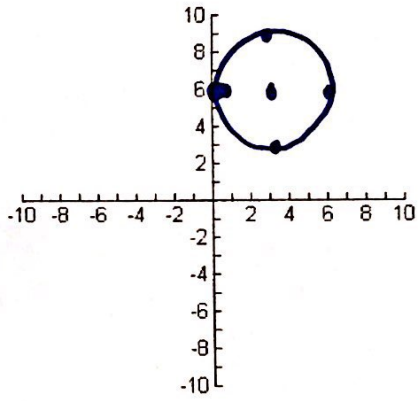
4. $\frac{(x+1)^2}{16} + \frac{(y-2)^2}{16} = 1(16)$

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



C: (-1, 2) $r = 4$

5. $x^2 + y^2 - 6x - 12y + 36 = 0$



$\left(\frac{b}{2}\right)^2$

$\left(\frac{-6}{2}\right)^2$
$(-3)^2$
9

$\left(\frac{-12}{2}\right)^2$
$(-6)^2$
36

$x^2 - 6x + y^2 - 12y = -36$

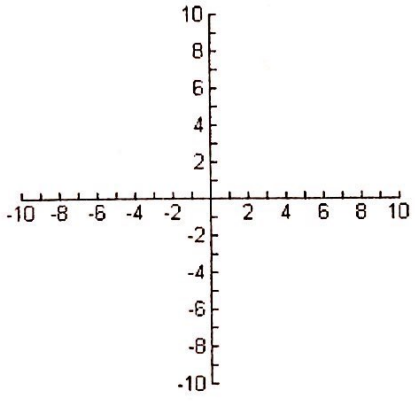
$(x^2 - 6x + \underline{9}) + (y^2 - 12y + \underline{36}) = -36 + \underline{9} + \underline{36}$

$(x-3)(x-3) + (y-6)(y-6) = 9$

$(x-3)^2 + (y-6)^2 = 9$

C: (3, 6) $r = 3$

6. $x^2 + y^2 - 12x + 10y + 12 = 0$



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(6) $x^2 - 12x + y^2 + 10y = -12$

$(x^2 - 12x + \underline{36}) + (y^2 + 10y + \underline{25}) = -12 + \underline{36} + \underline{25}$

$\left(\frac{-12}{2}\right)^2$
$(-6)^2$
36

$\left(\frac{10}{2}\right)^2$
$(5)^2$
25

$(x-6)^2 + (y+5)^2 = 49$

$C: (6, -5)$

$r = 7$

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