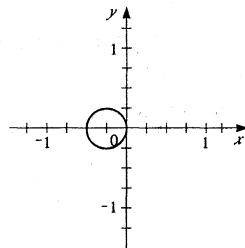


62. Completing the square gives $x^2 + y^2 - 2x - 2y = 2 \Leftrightarrow x^2 - 2x + \underline{\quad} + y^2 - 2y + \underline{\quad} = 2$
 $\Leftrightarrow x^2 - 2x + \left(\frac{-2}{2}\right)^2 + y^2 - 2y + \left(\frac{-2}{2}\right)^2 = 2 + \left(\frac{-2}{2}\right)^2 + \left(\frac{-2}{2}\right)^2 \Leftrightarrow$
 $x^2 - 2x + 1 + y^2 - 2y + 1 = 2 + 1 + 1 \Leftrightarrow (x - 1)^2 + (y - 1)^2 = 4$. Thus, the center is at $(1, 1)$, and the radius is 2.
64. Completing the square gives $x^2 + y^2 + 6y + 2 = 0 \Leftrightarrow x^2 + y^2 + 6y + \underline{\quad} = -2 \Leftrightarrow$
 $x^2 + y^2 + 6y + \left(\frac{6}{2}\right)^2 = -2 + \left(\frac{6}{2}\right)^2 \Leftrightarrow x^2 + y^2 + 6y + 9 = -2 + 9 \Leftrightarrow x^2 + (y + 3)^2 = 7$.
 Thus, the center is at $(0, -3)$, and the radius is $\sqrt{7}$.
66. Completing the square gives $x^2 + y^2 + 2x + y + 1 = 0 \Leftrightarrow x^2 + 2x + \underline{\quad} + y^2 + y = -1 \Leftrightarrow$
 $x^2 + 2x + \left(\frac{2}{2}\right)^2 + y^2 + y + \left(\frac{1}{2}\right)^2 = -1 + 1 + \left(\frac{1}{2}\right)^2 \Leftrightarrow x^2 + 2x + 1 + y^2 + y + \frac{1}{4} = \frac{1}{4} \Leftrightarrow$
 $(x + 1)^2 + \left(y + \frac{1}{2}\right)^2 = \frac{1}{4}$. Thus, the center is at $(-1, -\frac{1}{2})$, and the radius is $\frac{1}{2}$.
68. Completing the square gives $x^2 + y^2 + \frac{1}{2}x + 2y + \frac{1}{16} = 0 \Leftrightarrow$
 $x^2 + \frac{1}{2}x + \underline{\quad} + y^2 + 2y + \underline{\quad} = -\frac{1}{16} \Leftrightarrow$
 $x^2 + \frac{1}{2}x + \left(\frac{1/2}{2}\right)^2 + y^2 + 2y + \left(\frac{2}{2}\right)^2 = -\frac{1}{16} + \left(\frac{1/2}{2}\right)^2 + \left(\frac{2}{2}\right)^2 \Leftrightarrow \left(x + \frac{1}{4}\right)^2 + (y + 1)^2 = 1$.
 Thus, the center is at $(-\frac{1}{4}, -1)$, and the radius is 1.
70. First divide by 4, then complete the square. This gives
 $4x^2 + 4y^2 + 2x = 0 \Leftrightarrow x^2 + y^2 + \frac{1}{2}x = 0 \Leftrightarrow$
 $x^2 + \frac{1}{2}x + \underline{\quad} + y^2 = 0 \Leftrightarrow x^2 + \frac{1}{2}x + \left(\frac{1/2}{2}\right)^2 + y^2 = \left(\frac{1/2}{2}\right)^2 \Leftrightarrow$
 $\left(x + \frac{1}{4}\right)^2 + y^2 = \frac{1}{16}$.
 Thus, the center is at $(-\frac{1}{4}, 0)$, and the radius is $\frac{1}{4}$.



72. $x^2 + y^2 - 16x + 12y + 200 = 0 \Leftrightarrow x^2 - 16x + \underline{\quad} + y^2 + 12y + \underline{\quad} = -200 \Leftrightarrow$
 $x^2 - 16x + \left(\frac{-16}{2}\right)^2 + y^2 + 12y + \left(\frac{12}{2}\right)^2 = -200 + \left(\frac{-16}{2}\right)^2 + \left(\frac{12}{2}\right)^2 \Leftrightarrow$
 $(x - 8)^2 + (y + 6)^2 = -200 + 64 + 36 = -100$. Since completing the square gives $r^2 = -100$,
 this is not the equation of a circle. There is no graph.