

Conic Sections CS8 – Completing the Square

Check Problem: Find the center and radius of :  $x^2 + 2x + y^2 + 4y + 1 = 0$ .

---

What number is necessary to make the equation a “perfect square”?

1.  $x^2 + 22x + \underline{\hspace{2cm}}$

2.  $x^2 - 12x + \underline{\hspace{2cm}}$

3.  $x^2 + 9x + \underline{\hspace{2cm}}$

4.  $x^2 - 5x + \underline{\hspace{2cm}}$

Complete the squares to write the conic sections in their standard form.

5.  $x^2 - 2x + y^2 + 8y + 4 = 0$

6.  $x^2 + 3x + y^2 + 5y - \frac{1}{2} = 0$

7.  $x^2 + 12x - 3y - 9 = 0$

8.  $9x^2 + 36x + 5y^2 - 30y + 36 = 0$

9.  $16x^2 + 32x - 4y^2 + 40y + 28 = 0$

10. Graph the conic section:  $4x^2 - 8x + 10y^2 + 80y + 124 = 0$

