

## Some exercises in Geometry A.A. 22/23

Massimo Caboara

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### Exercise 0.1.

1. Draw the circle  $\gamma : x^2 + y^2 - 2x + 2y - 2 = 0$ .
2. Draw the circle  $\gamma : x^2 + y^2 + 4x - 6y + 12 = 0$ .
3. Draw the circle  $\gamma : x^2 + y^2 + 4/3x - 6y + 76/9 = 0$ .
4. Draw the circle  $\gamma : 4x^2 + 4y^2 + 8/3x - 12y + 76/9 = 0$ .
5. Draw the circle  $\gamma : 9x^2 + 9y^2 + 4x - 18y + 76/9 = 0$ .
6. Draw the circle  $\gamma : 9x^2 + 9y^2 + 12x - 18y + 12 = 0$ .
7. Draw the circle  $\gamma : x^2 + y^2 + x - 2/3y - 23/36 = 0$ .
8. Draw the circle  $\gamma : x^2 + y^2 + 4x - 6y + 13 = 0$ .

**Exercise 0.2.** Determine if the following equations represent circles. If this is the case, draw them

1. Draw the circle  $\gamma : x^2 + y^2 + 4x - 6y + 15 = 0$ .
2. Draw the circle  $\gamma : x^2 + y^2 + 2x - 14y + 48 = 0$ .
3. Draw the circle  $\gamma : x^2 + y^2 + 2x - 10y + 24 = 0$ .
4. Draw the circle  $\gamma : x^2 + y^2 + 2x - 10y + 28 = 0$ .

**Exercise 0.3.** Solve the systems of equations

1.

$$\begin{cases} x^2 + y^2 + 2x + 2y + 1 = 0 \\ x^2 + x - 29/16 = 0 \end{cases}$$

2.

$$\begin{cases} x^2 + y^2 = 1 \\ y = x^2 \end{cases}$$

3.

$$\begin{cases} x^2 + y^2 = 2x \\ x - y = 1 \end{cases}$$

4.

$$\begin{cases} x^2 + y^2 = 2x \\ x^2 + y^2 = 1 \end{cases}$$

5.

$$\begin{cases} xy = 4 \\ x^2 + y^2 = 1 \end{cases}$$

6.

$$\begin{cases} xy = -4 \\ x^2 + y^2 + 6x - 2y + 9 \end{cases}$$