

Linear Algebra II. Academic Year 2022-2023. Quadric surfaces. Voluntary assignment.

Let $d_1d_2d_3d_4d_5d_6d_7d_8$ be the eight digits of your DNI number⁽¹⁾. For instance, if your DNI number is 32478910, then $d_1 = 3$, $d_2 = 2$, $d_3 = 4$, $d_4 = 7$, $d_5 = 8$, $d_6 = 9$, $d_7 = 1$, $d_8 = 0$.

In the Euclidean affine space we consider the quadric with equation:

$$x^2 - d_2y^2 + (4 - d_1)z^2 + 2d_3xy + 2xz - 2d_4yz + 2d_7x + 2d_5y + 2d_6z + d_8 = 0.$$

1. Classify it and sketch a drawing of it.
2. Obtain its center.
3. Which types of curves are obtained by intersecting the quadric with a plane? Justify your answer (e.g. by providing a graphic to illustrate each type).

Rules:

- The submission of the assignment is voluntary.
- The deadline is Saturday, May 13 at 11:59 p.m.
- It will contribute a maximum of 0.5 points towards the final mark of the subject, as explained in the introductory class.
- **Only the assignments submitted on time will be considered.**
- Any indication of academic malpractice will result in disciplinary action, including not passing the course.
- In the submitted assignment you must include your name and DNI, and **keep a minimum of quality in the presentation.**
- The assignment should be submitted in PDF format through the Teams platform. **The name of the file must be "TT4-Name and surname.pdf". For example: "TT4-Luis Fuentes García.pdf"**. They will also be accepted in paper form exceptionally.
- Students may be required to present and explain the submitted assignment in person and show full knowledge of what they have written.

⁽¹⁾ If the identification document has less than 8 digits, you can replace each letter by the number 5. For example if it is ZZ013456 you can use 55013456.