

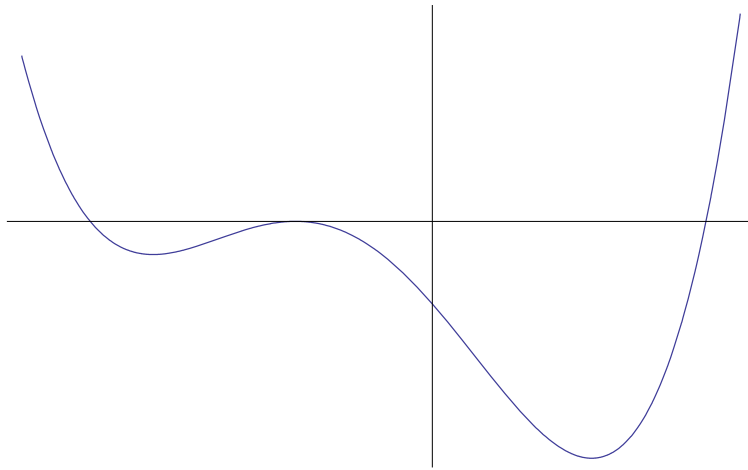
Factoring and Roots

For each problem:

- Try to solve the problem (or outline a procedure how to solve the problem).
- What do students need to know and be able to do to solve this problem?
- Classify the problem according to the level of cognitive demand.

Problem 1 Factor $x^2 + 5x + 6$.

Problem 2 What can you say about the roots of this 4th degree polynomial?

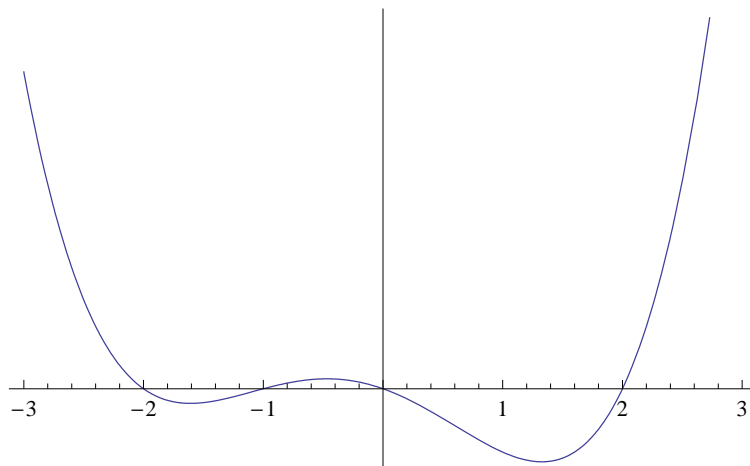


Problem 3 How can you tell whether a quadratic polynomial can be factored over the Reals?

Problem 4 For which values of b does $x^4 + 2bx^2 - 4 = 0$ have no (or 2, or 4) complex roots?

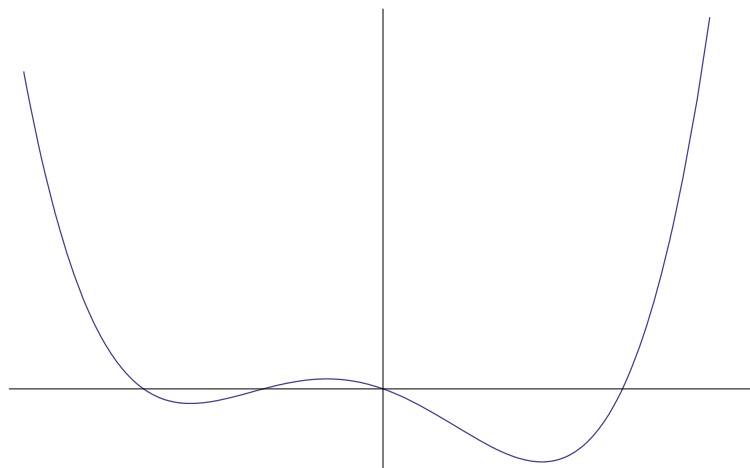
Problem 5 Factor $x^2 + 5x + 5$.

Problem 6 *How can you tell from the graph how to factor this 4th degree polynomial?*



Problem 7 *Factor $x^2 + 2x + 3$.*

Problem 8 *What can you say about the roots of this 4th degree polynomial?*



Problem 9 *Does $x^3 + 5x^2 + 13x + 9$ have a linear factor?*