

Exercises on Mathematica

Select2

Write a Mathematica function that works somewhat similar to `Select`. It should, however, not just give back the list of items for which the test function is true, but

{list of items for which test is True, list of items for which test is False}

Try to find a version in which the test function is not evaluated more than once per item!

Mathematica vs. FORM

Expand the following polynomial in both Mathematica and FORM:

$$\left[(50a_1a_2^2 + 23a_2 + 17a_4 + a_{12})(3a_2 - 12345a_2a_7 + 4a_{11} - a_4)^6 - (24a_7 + 13a_5 - 3121a_4 + 2793a_3 - 13a_2)^3(12a_5 + 7a_7 - 5a_{11})^7 \right]^3$$

If Mathematica fails to expand this expression due to memory constraints, try with a smaller outmost exponent. Compare both the execution time (`Timing`) and the memory used (`MaxMemoryUsed`).