Project: Symbolic Computation

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Question 1

We consider the polynomial ring.

Part 1.a

Write a definite clause grammar that recognises and parses polynomials with real coefficients. We use the LaTeX mathematical notation (see `https://www.overleaf.com/learn/latex/List_of_Greek_letters_and_math_symbols`) to input and output the polynomials and the the letter `x` to represent the indeterminate. The polynomial of Equation 1 is rendered polynomial for the LaTex code: `[5.2 \times  x^{22}- 3.44 \times x^3+25`.

$$5.2 \times x^{22} - 3.44 \times x^3 + 25 \tag{1}$$

Indicate in you report which additional shorthands and notations (e.g. associativity, recognising $5.2\ x^{22}$ as $5.2 \times x^{22}$) you implement.

Part 1.b

Some Prolog code is presented in Figure 1.

Question 2

You may download, intall and use a free and open-source TeX front-end program, like TeXworks (`http://www.tug.org/texworks/`), or an online LaTeX editor like Overleaf (`https://www.overleaf.com/`) to edit and process the report.

```
1 % member/2
2 member(X,[X|R]).
3 member(X,[Y|R]) :- member(X,R).
```

Figure 1: Prolog code snippet (Figures are floating)