In this project, you will implement the simulated annealing algorithm

Your code will attempt to find a minimum over a 1-dimensional energy function, which will be defined as a polynomial.

The input to the program will be the name of a text file containing the following:

(1) A series of numbers giving the polynomial energy function. If the input is "a b c d e f g h i", the polynomial energy function is $E(x) = a + b*x + c*x^2 + d*x^3 + e*x^4 + f*x^5 + g*h^6 + h*x^7 + i*x^8$
(2) An integer indicating how many iterations to perform in the simulated annealing procedure (*x*)

For example, an input file could look like:

```
-9 15.3 1.3 -13.8 7.6 -1.5 0.1
10000
```

Your function should simply output the x-value generated during the simulated annealing procedure with the smallest energy. You may assume that the function does not go to negative infinity in either direction.

A description of the simulated annealing algorithm and Metropolis Monte Carlo acceptance probabilities can be found in the April 23rd lecture, slides 28-35.

You should play with the following input function

$$y = -9 + 15.3x + 1.3x^2 - 13.8x^3 + 7.6x^4 - 1.5x^5 + 0.1x^6$$

and determine

(1) how to pick the initial point for x
(2) how to move from x to a new point x' (this function can change with iteration if you want)
(3) the cooling schedule (temperature T as a function of iteration)

Your code should work for **any** one-dimensional function, though many of the test cases will deal with different numbers of iterations for this polynomial. DO NOT have your code use the fact that the energy function is a polynomial to find roots or minima in any way other than the simulated annealing procedure. DO NOT hard code in anything about this polynomial!

There is no "right answer" for the three things above and determining suitable ones is an open problem. My goal is more to have you play with different choices and see the effect on the simulated annealing procedure.

Please gzip your files into a single file. You must submit the following files:

(1) Your well-commented code for the assignment (this may include multiple files)
(2) A read-me file with your name and instructions for how to compile and run your code
(3) A textual description of what you chose for the three things above (choosing initial point, transitions, cooling schedule) and why (about 1 page total).