Represent a polynomial in three variables (x, y and z) as a list. Although a circular list is recommended, you may use any reasonable list structure (double or multi - links or headers). You must be sure to justify your choice. If you choose to use a circular list, you must explain why that is a good choice. Consider an alternate structure that might be better, based on your experience with the lab. You may use recursion if you choose. Explain why recursion is or is not a good choice.

Your program should be able to add (or subtract), multiply, display and evaluate a polynomial represented this way. Keep in mind that subtraction is accomplished by using scalar multiplication with the coefficient -1 and then doing normal addition.

As a minimum use the following expressions to test your program:

(A) $5x^2y^2z^3 + 2xz^4 + y^2z + z$

(B) $3x^4y^4z^4 + 12x^3 + y^2z^2 + 2yz^3$

(C) $2xyz$

(D) $25xyz - 3xz^4 - 12yz^3$

A + B	Evaluate each of A, B, C, D at the following points:
A + C	x=0, y=1, z=2,
A + D	x=1, y=2, z=3
B + C	x=2, y=1, z=0
B + D	
C + D	
B - A	
B - D	
A * B	
A * C	
A * D	
B * A	
B * C	
B * D	
C * D	

Also evaluate the resulting expression, where legitimate for the specified operations. Remember this is the MINIMAL input. You should also test your program against other polynomials and values. If your program has any special features or properties, then the input should allow them to be demonstrated if you wish to get the proper credit.

Be sure to review the Programming Assignment Guidelines for specific requirements for the Analysis and before submitting this assignment.