Lab Task1

For the math buffs only: create a class **polar** that represent the points on the plain as polar coordinates (radius, angle).Create an overloaded + operator for addition of two polar quantities. “Adding” two points on the plain can be accomplished by adding their X coordinates and the adding their Y coordinates. This gives the X and Y coordinates of the “answer”. Thus you will need to convert two sets of polar coordinates to rectangular coordinates, add them, and then convert the resulting rectangular representation back to polar.

**Formulas:**

**For rectangular coordinates:**

**x = r cos0**

**y = r sin0**

**For polar coordinates:**

**r = √ x2 + y2 where r is radius.**

**0 = atan(y/x) where 0 is angle.**

class Polar

{

private:

double radius;

double angle;

public:

Polar ()

Polar (double r, double a)

Polar add(const Polar &p)

void display();

};

Lab Task2

1. Some of the characteristics of a book are title, author(s), publisher, ISBN, price, and year of publication. Design a class bookType that defines the book as an Abstract DataType (ADT) or user defined data type.
2. Each object of the class bookType can hold the following information about a book: titile, up to four authors, publisher, ISBN, price, and number of copies in stock. To keep track of the number of authors, add another member variable.
3. Include the member functions to perform the various operations on objects of the type bookType. For example, the ususal operations that can be performed on the title is the same as the actual title , set the title, and ckeck whether a title is the same as the actual title of the book. Similarly, the typical operations that can be performed on the number of copies in stock, updata the number of copies in stock, and return the number of copies in stock. Add similar operations for the publisher, ISBN, book price, and authors. Add the appropriate constructors and a destrucotors(if one is needed).
4. Write the definition of the member functions of the class bookType.
5. Write a program that uses the class bookType and test various operations on the objects of the class bookType.Declare an array of 100 components of the bookType. Some of the operations that you should perform are to search for a book by its title, search by ISBN, and update the number of copies of a book.

class BookType

{

private :

char \*title;

char \*author;

char \*publisher;

double price;

int noOfCopies;

public:

BookType();

void set(char \* t, char \*a, char \*p, double pr, int c);

void setTitle(char \* t);

void setAuthor(char \* t);

bool search (char \* ); // search a book by it’s title

BookType operator = (const BookType &b);

~BookType()

};