# 16.216: ECE Application Programming
Spring 2013

Lecture 15: Key Questions
March 1, 2013

1. **Example:** Write a function to do each of the following:
a. Prints a series of LINE_LENGTH dashes on a single line, where LINE_LENGTH is a predefined constant (using #define)

b. Reads a value from the console input and returns 1 if the value is even, 0 if it's odd

c. Takes four numbers as arguments and returns their average

2.  Explain what a pointer is, and how we can use them in C.

3.  Explain the use of passing function arguments by address.

4. What does the following program print?

```c
#include <stdio.h>
#include <math.h>
void get_r_theta(double a, double b,
      double *adr_r, double *adr_th);

void main()
{
  double x,y,h,r,th;
  printf("Enter x, y components of vector: ");
  scanf("%lf %lf",&x,&y);
  get_r_theta(x,y,&r,&th);
  printf("Vector with x=%lf and y=%lf
      has r=%lf, theta=%lf\n",x,y,r,th);
}

void get_r_theta(double a, double b,
            double *adr_r, double *adr_th) {
  double sum;
  sum = pow(a,2)+pow(b,2); //or a*a+b*b;
  *adr_r = sqrt(sum);
  *adr_th = atan2(y,x);
}
```