```
/* This is a demonstration program for writing stuff in C

   To compile: gcc -o grid0 grid0.c -lm
                                    ^^^ "links to" library libm.a

*/

#include <stdio.h>   /* I/O library (actually, "prototypes" in this case) */
#include <math.h>    /* standard math library */



main() {

  float x=2;
  float y;

  y = exp(-pow(x,2.0)/2.0);

  printf("The value is %8.4f\n", y);

}
```

==

```
/* This is a demonstration program for writing stuff in C

   To compile: gcc -o grid1 grid1.c -lm
                                    ^^^ "links to" library libm.a

*/

#include <stdio.h>   /* I/O library (actually, "prototypes" in this case) */
#include <math.h>    /* standard math library */


main() {

  float x;
  float y;

  int i;

  int imax;
  float ymax;

  for (i=0;i<21;i++) {

    x = -1.0 + (i/10.0);

    /*
       Note:  x = -1.0 + (i/10); doesn't produce the
       right answer, because of "default" type coercion
    */

    y = exp(-pow(x,2.0)/2.0);

    printf("The value at %8.4f is %8.4f\n", x, y);

      }

}
```

```
/* This is a demonstration program for writing stuff in C

   To compile: gcc -o grid2 grid2.c -lm
                                    ^^^ "links to" library libm.a

*/

#include <stdio.h>   /* I/O library (actually, "prototypes" in this case) */
#include <math.h>    /* standard math library */

typedef float real;



real fcn(real x) {

  real y;

  y = exp(-pow(x,2.0)/2.0);

  return(y);

}



main() {

  real x;
  real y;

  real g[21];
  int i;

  int imax    = -1;
  real ymax  = -10;

  for (i=0;i<21;i++) {

    g[i] = -1.0 + (i/10.0);

    /*
       Note:  g[i] = -1.0 + (i/10); doesn’t produce the
       right answer, because of "default" type coercion
    */

    /* y = exp(-pow(g[i],2.0)/2.0); */

    y = fcn(g[i]);

    printf("The value at %8.4f is %8.4f\n", g[i], y);

    if (ymax<y) {
      ymax = y;
      imax = i;
    }

  }

  printf("The maximum is %8.4f, which occurs at g[%i] = %8.4f\n",
         ymax, imax, g[imax]);

}
```