```c
# include <stdlib.h>
# include <stdio.h>
# include <math.h>

# include "cordic.h"

/******************************************************************/

int main ( )

/******************************************************************/
/*

  CORDIC test

  Licensing:

    This code is distributed under the GNU LGPL license.

  Modified:

    2012.04.17

  Author:

    Modifications by John Burkardt

    Further modified by Young W. Lim

  Parameters:

*/
{
  double pi = 3.141592653589793;
  double K = 1.646760258121;
  int nIter = 10;

  double x, y, z;


  //-----------------------------------------------------------------------
  // printf ("\nGrinding on [K, 0, 0]\n");
  // Circular (X0C, 0L, 0L);
  //-----------------------------------------------------------------------
  x = 1 / K;
  y = 0.0;
  z = 0.0;
  printf("-------------------------------------------------\n");
  printf("xi=%f yi=%f zi=%f\n", x, y, z);

  cordic(&x, &y, &z, nIter);

  printf("xo=%f yo=%f zo=%f\n", x, y, z);


  //-----------------------------------------------------------------------
  // printf ("\nGrinding on [K, 0, pi/6] -> [0.86602540, 0.50000000, 0]\n");
  // Circular (X0C, 0L, HalfPi / 3L);
  //-----------------------------------------------------------------------
  x = 1 / K;
  y = 0.0;
  z = pi / 6.0;
  printf("-------------------------------------------------\n");
  printf("xi=%f yi=%f zi=%f\n", x, y, z);

  cordic(&x, &y, &z, nIter);

  printf("xo=%f yo=%f zo=%f\n", x, y, z);
```

```c
    //---------------------------------------------------------------------------
    // printf ("\nGrinding on [K, 0, pi/4] -> [0.70710678, 0.70710678, 0]\n");
    // Circular (X0C, 0L, HalfPi / 2L);
    //---------------------------------------------------------------------------
    x = 1 / K;
    y = 0.0;
    z = pi / 4.0;
    printf("----------------------------------------------\n");
    printf("xi=%f yi=%f zi=%f\n", x, y, z);

    cordic(&x, &y, &z, nIter);

    printf("xo=%f yo=%f zo=%f\n", x, y, z);



    //---------------------------------------------------------------------------
    // printf ("\nGrinding on [K, 0, pi/3] -> [0.50000000, 0.86602540, 0]\n");
    // Circular (X0C, 0L, 2L * (HalfPi / 3L));
    //---------------------------------------------------------------------------
    x = 1 / K;
    y = 0.0;
    z = pi / 3.0;
    printf("----------------------------------------------\n");
    printf("xi=%f yi=%f zi=%f\n", x, y, z);

    cordic(&x, &y, &z, nIter);

    printf("xo=%f yo=%f zo=%f\n", x, y, z);

    return 0;
}
```