

Arb Example

You can obtain the C library Arb from <https://github.com/fredrik-johansson/arb/releases>. The documentation can be found on <http://fredrikj.net/arb>.

The following is in the file [arb_add.c](#).

```
#include <string.h>
#include <arb.h>

int print_help(void);

int main(int argc, char * argv[])
{
    if(argc < 3)
    {
        if(argc==2 && strcmp(argv[1], "--help")==0)
        {
            return print_help();
        }

        printf("ERROR: Must enter two numbers to add!\n");
        printf("Please Type --help for more help!\n");
        return 0;
    }

    if(strcmp(argv[1], "--help")==0) return print_help();

    int woradius= 0;
    int unknown_input = 0;
    long i, digits=300, prec=1000;
    char * str_res;
    arb_t inp1, inp2, res;

    for(i=3; i < argc; i++)
    {
        if(strcmp(argv[i], "-prec")==0)
        {
            prec=atol(argv[i+1]);
            i=i+1;
        }
        else if(strcmp(argv[i], "-digits")==0)
        {
            digits=atol(argv[i+1]);
            i=i+1;
        }
        else if(strcmp(argv[i], "-noradius")==0)
        {
            woradius = 1;
        }
        else if(strcmp(argv[i], "--help")==0)
        {
            return print_help();
        }
        else{
```

```

        printf("%s is Unknown Input! Use --help For
Instructions.\n",argv[i]);
        unknown_input = 1;
    }
}

if(unknown_input == 1)
{
    return 0;
}

arb_init(inp1),arb_init(inp2),arb_init(res);

arb_set_str(inp1,argv[1],prec);
arb_set_str(inp2,argv[2],prec);
arb_add(res,inp1,inp2,prec);

if(woradius==0)
{
    str_res = arb_get_str(res,digits,1);
}
else {
    str_res = arb_get_str(res,digits,ARB_STR_NO_RADIUS);
}
printf("%s+%s=%s\n",argv[1],argv[2],str_res);

arb_clear(inp1),arb_clear(inp2),arb_clear(res);
free(str_res);
flint_cleanup();
return 1;
}

int print_help()
{
    printf("To use this program, use the following command: \n");
    printf("\tarbAdd inp1 inp2 [Optional Flags] \n");
    printf("Optional Flags: \n\n");
    printf("-prec prec\n");
    printf("\t Sets the precision used to add user input\n");
    printf("-digits digits\n");
    printf("\t Sets the number of digits to be printed to screen\n");
    printf("-noradius\n");
    printf("\t Use this flag to print result without the radius.\n\n");
    printf("A user is free to make any changes and distribute
freely.\n\n");
    printf("\tAuthor: Ricky E. Farr, 2015\n");
    printf("\tUniversity of North Carolina at Greensboro\n");
    printf("\tDepartment of Mathematics and Statistics\n");
    printf("\trefarr@uncg.edu\n");
    return 0;
}

```

On our setup you can compile this with

```
gcc -I/usr/local/include/flint -lm -lgmp -lmpfr -lflint -larb -o arb_add  
arb_add.c
```

Run it with

```
./arb_add 23467354.213 4378.1
```