

Lab 8

Submit your program before the deadline

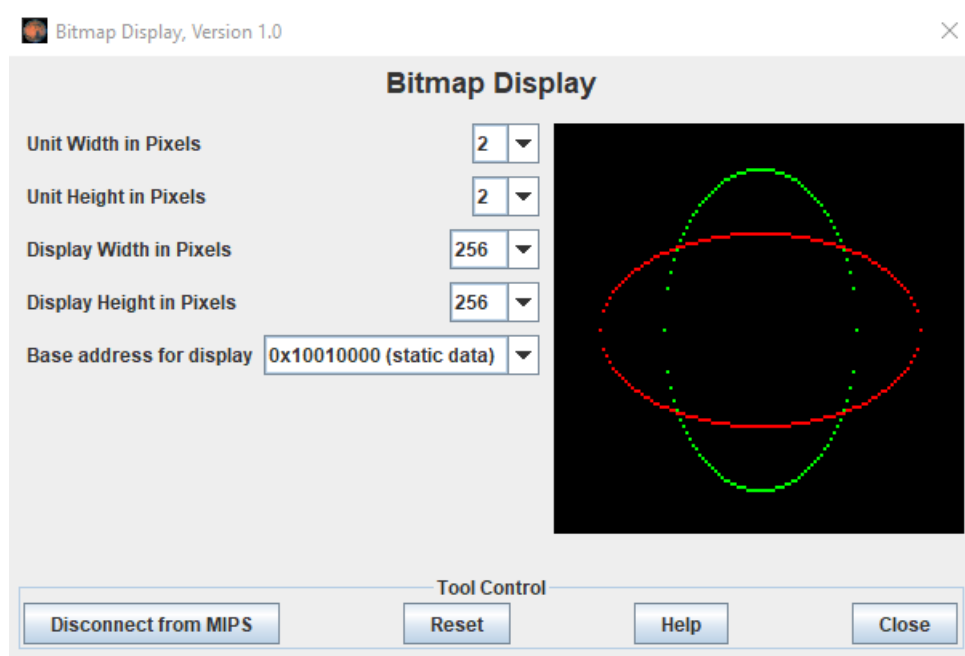
1. The equation of a standard ellipse centered at the origin with width $2a$ and height $2b$ is¹

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

Implement a procedure `drawEllipse` in MIPS assembly language that draws an ellipse. The procedure should take the x and y coordinates of the *center* of ellipse (in `$a0` and `$a1`), the color of ellipse (in `$a2`), the values of a and b (in `$f12` and `$f14`) as inputs. The signature of this procedure in a high level language would look like this: `void drawEllipse(int centerX, int centerY, int color, float a, float b)`.

In your program, call this procedure two times to draw two ellipses. The figure below shows an output example. In the first ellipse, we set $a = 30.0$, $b = 50.0$, and color to green. In the second, we set $a = 50.0$, $b = 30.0$, and color to red. In both cases, we set the x and y coordinates of the centers to 64 and 64.

Set both the width and height of your display to 128. Set the center of your ellipse to (64, 64). In your Bitmap Display tool set Unit Width, Unit Height, Display Width, and Display Height to 2, 2, 256, and 256, respectively, as shown below.



¹<https://en.wikipedia.org/wiki/Ellipse>