START
WAIT_1
INIT
LOOP_COND
LOOP_BODY
OUTPUT_RES
WAIT_0

```
// inputs: go, x, y
// outputs: output, done

// reset values (add any others that you might need)

output = 0;
done = 0;

while(1) {

	// wait for go to start circuit
	while (go == 0);
	done = 0;

	// store inputs in registers
	tmpX = X;
	tmpY = Y;

	// main GCD algorithm
	while (tmpX != tmpY) {
		if (tmpX < tmpY)
			tmpY = tmpY-tmpX;
		else
			tmpX = tmpX-tmpY;
	}

	// assign output and assert done
	output = tmpX;
	done = 1;

	// make sure go has been cleared before starting again

	while (go == 1);
}
```