

```

.file      "gcd.c"
.text
.globl gcd
.type      gcd, @function

```

Assembler directives start with "."
 "This will be executable code"
 "gcd is a linker-visible label"

```

gcd:
    pushl   %ebp
    movl    %esp, %ebp
    subl    $20, %esp
    jmp     .L2

.L3:
    movl    12(%ebp), %eax
    movl    %eax, 8(%ebp)    m=n
    movl    -4(%ebp), %eax
    movl    %eax, 12(%ebp)   n = r

```

```

.L2:
    movl    8(%ebp), %edx
    movl    %edx, %eax
    sarl    $31, %edx
    idivl   12(%ebp)         %edx = m % n,
    movl    %edx, -4(%ebp)   quotient in %eax,
    cmpl    $0, -4(%ebp)    remainder in %edx
    jne     .L3

```

move %ebp to
 %esp and pop
 %ebp from the
 stack"

Pop a return
 address from
 the stack and
 branch to it

```

    movl    12(%ebp), %eax    return n(caller expects
    leave                                value in %eax)
    ret

```

```

.size      gcd, .-gcd
.ident     "GCC: (Ubuntu 4.3.3-5ubuntu4) 4.3.3"
.section   .note.GNU-stack,"",@progbits

```

Stack before call

	n	8(%esp)
	m	4(%esp)
%esp	return	0(%esp)

Stack after call

	n	12(%ebp)
	m	8(%ebp)
	Return	4(%ebp)
%ebp	old ebp	0(%ebp)
%esp		0(%esp)