# REFERENCIA RÁPIDA ARDUINO

OSHWDEM - 2014

BricoLabs

## Estructura

void **setup**()
void **loop**()

## Control de flujo

```
if(x<5){}
for(int i = 0; i <255 i++ ){}
while((x <6 ){}
```

## Sintaxis adicional

// Single line comment
/ * .. * / Multi line comment
#define ANSWER 42
#include <myLib.h>

## Operadores

= assignment
+, − addition, substraction
*, / multiplication, division
% modulo
== equal to
! = not equal to
< less than
<= less than or equal to

## Punteros

& reference operator
* dereference operator

## Operadores de bit

& bitwise AND
| bitwise OR
∧ bitwise XOR
∼ bitwise NOT

## Operadores compuestos

++ Increment
−− Decrement
+ = Compound addition
& = Compound bitwise AND

## Constantes

```
HIGH, LOW
INPUT, OUTPUT
true, false
```

53 : Decimal
B11010101 : Binary
0x5BA4 : Hexadecimal

## Tipos de datos

| | |
|---|---|
| **void** | |
| **boolean** | 0, 1, false, true |
| **char** | e.g. 'a' -128 → 127 |
| **unsigned char** | 0 → 255 |
| **int** | -32.768 → 32.767 |
| **unsigned int** | 0 → 65535 |
| **long** | -2.147.483.648 → 2.147.483.647 |
| **float** | -3,4028235E+38 → 3.402835E+38 |
| **sizeof** (myint) | returns 2 bytes |

## Arrays

int myInts[6];
int myPins[]=2,4,8,5,6;
int myVals[6]=2,-4,9,3,5;

## Strings

char S1[15];
char S2[8]='A','r','d','u','i','n','o';
char S3[8]='A','r','d','u','i','n','o','\0';
char S4[]="Arduino";
char S5[8] = "Arduino";
char S6[15] = "Arduino";

## Conversión

**char()** **int()** **long()**
**byte()** **word()** **float()**

## Calificadores

| | |
|---|---|
| **static** | Persist between calls |
| **volatile** | Use RAM (nice for ISR) |
| **const** | Mark read-only |
| **PROGMEM** | Use flash memory |

## Interrupciones

**attachInterrupt**(interrupt, function, type)
**detachInterrupt**(interrupt)
**boolean**(interrupt)
**interrupts**()
**noInterrupts**()

## E/S Avanzada

**tone**(pin, freqhz)
**tone**(pin, freqhz, duration_ms)
**noTone**(pin)
**shiftOut** (dataPin, clockPin, how, value)
unsigned long **pulseIn**(pin, [HIGH,LOW])

## Tiempo

unsigned long **millis()** 50 days overflow
unsigned long **micros()** 70 min overflow
**delay**(ms)
**delayMicroseconds**(us)

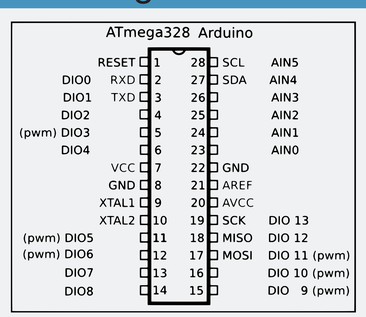
## Matemáticas

**min**(x,y) **max**(x,y) **abs**(x)
**sin**(rad) **cos**(rad) **tan**(rad)
**pow**(base, exponent)
**map**(val, fromL, fromH, toL, toH)
**constrain**(val, fromL, toH)

## Números Pseudo Aleatorios

**randomSeed**(seed)
long **random**(max)
long **random**(min, max)

## Pineado ATmega328




## Pines E/S

| | Uno | Mega |
|---|---|---|
| # of IO | 14 + 6 | 54 + 11 |
| Serial Pins 3 | 0 - RX, 1 -TX | RX1 → RX4 |
| Interrupts | 2,3 | 2,3,18,19,20,21 |
| PWM Pins | 5,6 - 9,10 - 3,11 | 0 → 13 |
| SPI (SS, MOSI, MISO, SCK) | 10→ 13 | 50→ 53 |
| I2C (SDA, SCK) | A4, A5 | 20,21 |

## E/S Analógica

```
analogReference(EXTERNAL, INTERNAL)
analogRead(pin)
analogWrite(pin)
```

## E/S Digital

```
pinMode(pin,[INPUT,OUTPUT])
digitalWrite(pin, value)
int analogRead(pin)
```

## Comunicación Serie

**Serial.begin**(speed)
**Serial.print**("Text")
**Serial.println**("Text")

## Web

```
forum.arduino.cc
playground.arduino.cc
arduino.cc/en/Reference
```

## Arduino Uno