

# Rand()

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# Rand()

- rand() - Pseudo-Random Number Generator
  - In <stdlib.h>
  - Generates a series of random integer values between 0 and the value of RAND\_MAX (32767 for us)
  - Uses a seed to generate the first random number
    - If you use the same seed, or the default seed (1), you will get the same series of random numbers every time you run the program
    - srand(seedval) – sets the seed value for rand() – seedval can be int or float
  - You can limit the range of rand() by using the modulo operator

```
val = rand() % 10;           // rand from 0 to 9
val = rand() % 10 + 1;      // rand from 1 to 10
val = rand() % 19 - 9;      // rand from -9 to 9
float_val = ((float)(rand() % 100)) / 100;
                           // 0 <= val < 1
                           // in .01 increments
```

# Rand()

- Example

```
...  
srand(5);           // set seed for testing  
...  
while(1){  
    ...  
    val = rand() % 10; // random: 0 <= val <= 9  
    ...  
} // end while
```

# Rand()

- time()
  - In <time.h>
  - Returns the time since 00:00:00 UTC, January 1, 1970 in seconds
  - Can be used to generate a seed that is different every time a program is run

```
...
srand(time(NULL));    // set seed based on time – always different
...
while(1){
    ...
    val = rand() % 10;    // random: 0 <= val <= 9
    ...
} // end while
```