# Python Built in Functions

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| **Function** | **Description** |
| [abs()](https://www.w3schools.com/python/ref_func_abs.asp) | Returns the absolute value of a number |
| [all()](https://www.w3schools.com/python/ref_func_all.asp) | Returns True if all items in an iterable object are true |
| [any()](https://www.w3schools.com/python/ref_func_any.asp) | Returns True if any item in an iterable object is true |
| [ascii()](https://www.w3schools.com/python/ref_func_ascii.asp) | Returns a readable version of an object. Replaces none-ascii characters with escape character |
| [bin()](https://www.w3schools.com/python/ref_func_bin.asp) | Returns the binary version of a number |
| [bool()](https://www.w3schools.com/python/ref_func_bool.asp) | Returns the boolean value of the specified object |
| [bytearray()](https://www.w3schools.com/python/ref_func_bytearray.asp) | Returns an array of bytes |
| [bytes()](https://www.w3schools.com/python/ref_func_bytes.asp) | Returns a bytes object |
| [callable()](https://www.w3schools.com/python/ref_func_callable.asp) | Returns True if the specified object is callable, otherwise False |
| [chr()](https://www.w3schools.com/python/ref_func_chr.asp) | Returns a character from the specified Unicode code. |
| classmethod() | Converts a method into a class method |
| [compile()](https://www.w3schools.com/python/ref_func_compile.asp) | Returns the specified source as an object, ready to be executed |
| [complex()](https://www.w3schools.com/python/ref_func_complex.asp) | Returns a complex number |
| [delattr()](https://www.w3schools.com/python/ref_func_delattr.asp) | Deletes the specified attribute (property or method) from the specified object |
| [dict()](https://www.w3schools.com/python/ref_func_dict.asp) | Returns a dictionary (Array) |
| [dir()](https://www.w3schools.com/python/ref_func_dir.asp) | Returns a list of the specified object's properties and methods |
| [divmod()](https://www.w3schools.com/python/ref_func_divmod.asp) | Returns the quotient and the remainder when argument1 is divided by argument2 |
| [enumerate()](https://www.w3schools.com/python/ref_func_enumerate.asp) | Takes a collection (e.g. a tuple) and returns it as an enumerate object |
| [eval()](https://www.w3schools.com/python/ref_func_eval.asp) | Evaluates and executes an expression |
| [exec()](https://www.w3schools.com/python/ref_func_exec.asp) | Executes the specified code (or object) |
| [filter()](https://www.w3schools.com/python/ref_func_filter.asp) | Use a filter function to exclude items in an iterable object |
| [float()](https://www.w3schools.com/python/ref_func_float.asp) | Returns a floating point number |
| [format()](https://www.w3schools.com/python/ref_func_format.asp) | Formats a specified value |
| [frozenset()](https://www.w3schools.com/python/ref_func_frozenset.asp) | Returns a frozenset object |
| [getattr()](https://www.w3schools.com/python/ref_func_getattr.asp) | Returns the value of the specified attribute (property or method) |
| [globals()](https://www.w3schools.com/python/ref_func_globals.asp) | Returns the current global symbol table as a dictionary |
| [hasattr()](https://www.w3schools.com/python/ref_func_hasattr.asp) | Returns True if the specified object has the specified attribute (property/method) |
| hash() | Returns the hash value of a specified object |
| help() | Executes the built-in help system |
| [hex()](https://www.w3schools.com/python/ref_func_hex.asp) | Converts a number into a hexadecimal value |
| [id()](https://www.w3schools.com/python/ref_func_id.asp) | Returns the id of an object |
| [input()](https://www.w3schools.com/python/ref_func_input.asp) | Allowing user input |
| [int()](https://www.w3schools.com/python/ref_func_int.asp) | Returns an integer number |
| [isinstance()](https://www.w3schools.com/python/ref_func_isinstance.asp) | Returns True if a specified object is an instance of a specified object |
| [issubclass()](https://www.w3schools.com/python/ref_func_issubclass.asp) | Returns True if a specified class is a subclass of a specified object |
| [iter()](https://www.w3schools.com/python/ref_func_iter.asp) | Returns an iterator object |
| [len()](https://www.w3schools.com/python/ref_func_len.asp) | Returns the length of an object |
| [list()](https://www.w3schools.com/python/ref_func_list.asp) | Returns a list |
| [locals()](https://www.w3schools.com/python/ref_func_locals.asp) | Returns an updated dictionary of the current local symbol table |
| [map()](https://www.w3schools.com/python/ref_func_map.asp) | Returns the specified iterator with the specified function applied to each item |
| [max()](https://www.w3schools.com/python/ref_func_max.asp) | Returns the largest item in an iterable |
| [memoryview()](https://www.w3schools.com/python/ref_func_memoryview.asp) | Returns a memory view object |
| [min()](https://www.w3schools.com/python/ref_func_min.asp) | Returns the smallest item in an iterable |
| [next()](https://www.w3schools.com/python/ref_func_next.asp) | Returns the next item in an iterable |
| [object()](https://www.w3schools.com/python/ref_func_object.asp) | Returns a new object |
| [oct()](https://www.w3schools.com/python/ref_func_oct.asp) | Converts a number into an octal |
| [open()](https://www.w3schools.com/python/ref_func_open.asp) | Opens a file and returns a file object |
| [ord()](https://www.w3schools.com/python/ref_func_ord.asp) | Convert an integer representing the Unicode of the specified character |
| [pow()](https://www.w3schools.com/python/ref_func_pow.asp) | Returns the value of x to the power of y |
| [print()](https://www.w3schools.com/python/ref_func_print.asp) | Prints to the standard output device |
| property() | Gets, sets, deletes a property |
| [range()](https://www.w3schools.com/python/ref_func_range.asp) | Returns a sequence of numbers, starting from 0 and increments by 1 (by default) |
| repr() | Returns a readable version of an object |
| [reversed()](https://www.w3schools.com/python/ref_func_reversed.asp) | Returns a reversed iterator |
| [round()](https://www.w3schools.com/python/ref_func_round.asp) | Rounds a numbers |
| [set()](https://www.w3schools.com/python/ref_func_set.asp) | Returns a new set object |
| [setattr()](https://www.w3schools.com/python/ref_func_setattr.asp) | Sets an attribute (property/method) of an object |
| [slice()](https://www.w3schools.com/python/ref_func_slice.asp) | Returns a slice object |
| [sorted()](https://www.w3schools.com/python/ref_func_sorted.asp) | Returns a sorted list |
| @staticmethod() | Converts a method into a static method |
| [str()](https://www.w3schools.com/python/ref_func_str.asp) | Returns a string object |
| [sum()](https://www.w3schools.com/python/ref_func_sum.asp) | Sums the items of an iterator |
| [super()](https://www.w3schools.com/python/ref_func_super.asp) | Returns an object that represents the parent class |
| [tuple()](https://www.w3schools.com/python/ref_func_tuple.asp) | Returns a tuple |
| [type()](https://www.w3schools.com/python/ref_func_type.asp) | Returns the type of an object |
| [vars()](https://www.w3schools.com/python/ref_func_vars.asp) | Returns the \_\_dict\_\_ property of an object |
| [zip()](https://www.w3schools.com/python/ref_func_zip.asp) | Returns an iterator, from two or more iterators |

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### Example

Return the value of 4 to the power of 3 (same as 4 \* 4 \* 4):

x = pow(4, 3)

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# Python String Methods

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| **Method** | **Description** |
| [capitalize()](https://www.w3schools.com/python/ref_string_capitalize.asp) | Converts the first character to upper case |
| [casefold()](https://www.w3schools.com/python/ref_string_casefold.asp) | Converts string into lower case |
| [center()](https://www.w3schools.com/python/ref_string_center.asp) | Returns a centered string |
| [count()](https://www.w3schools.com/python/ref_string_count.asp) | Returns the number of times a specified value occurs in a string |
| [encode()](https://www.w3schools.com/python/ref_string_encode.asp) | Returns an encoded version of the string |
| [endswith()](https://www.w3schools.com/python/ref_string_endswith.asp) | Returns true if the string ends with the specified value |
| [expandtabs()](https://www.w3schools.com/python/ref_string_expandtabs.asp) | Sets the tab size of the string |
| [find()](https://www.w3schools.com/python/ref_string_find.asp) | Searches the string for a specified value and returns the position of where it was found |
| [format()](https://www.w3schools.com/python/ref_string_format.asp) | Formats specified values in a string |
| format\_map() | Formats specified values in a string |
| [index()](https://www.w3schools.com/python/ref_string_index.asp) | Searches the string for a specified value and returns the position of where it was found |
| [isalnum()](https://www.w3schools.com/python/ref_string_isalnum.asp) | Returns True if all characters in the string are alphanumeric |
| [isalpha()](https://www.w3schools.com/python/ref_string_isalpha.asp) | Returns True if all characters in the string are in the alphabet |
| [isdecimal()](https://www.w3schools.com/python/ref_string_isdecimal.asp) | Returns True if all characters in the string are decimals |
| [isdigit()](https://www.w3schools.com/python/ref_string_isdigit.asp) | Returns True if all characters in the string are digits |
| [isidentifier()](https://www.w3schools.com/python/ref_string_isidentifier.asp) | Returns True if the string is an identifier |
| [islower()](https://www.w3schools.com/python/ref_string_islower.asp) | Returns True if all characters in the string are lower case |
| [isnumeric()](https://www.w3schools.com/python/ref_string_isnumeric.asp) | Returns True if all characters in the string are numeric |
| [isprintable()](https://www.w3schools.com/python/ref_string_isprintable.asp) | Returns True if all characters in the string are printable |
| [isspace()](https://www.w3schools.com/python/ref_string_isspace.asp) | Returns True if all characters in the string are whitespaces |
| [istitle()](https://www.w3schools.com/python/ref_string_istitle.asp) | Returns True if the string follows the rules of a title |
| [isupper()](https://www.w3schools.com/python/ref_string_isupper.asp) | Returns True if all characters in the string are upper case |
| [join()](https://www.w3schools.com/python/ref_string_join.asp) | Joins the elements of an iterable to the end of the string |
| [ljust()](https://www.w3schools.com/python/ref_string_ljust.asp) | Returns a left justified version of the string |
| [lower()](https://www.w3schools.com/python/ref_string_lower.asp) | Converts a string into lower case |
| [lstrip()](https://www.w3schools.com/python/ref_string_lstrip.asp) | Returns a left trim version of the string |
| maketrans() | Returns a translation table to be used in translations |
| [partition()](https://www.w3schools.com/python/ref_string_partition.asp) | Returns a tuple where the string is parted into three parts |
| [replace()](https://www.w3schools.com/python/ref_string_replace.asp) | Returns a string where a specified value is replaced with a specified value |
| [rfind()](https://www.w3schools.com/python/ref_string_rfind.asp) | Searches the string for a specified value and returns the last position of where it was found |
| [rindex()](https://www.w3schools.com/python/ref_string_rindex.asp) | Searches the string for a specified value and returns the last position of where it was found |
| [rjust()](https://www.w3schools.com/python/ref_string_rjust.asp) | Returns a right justified version of the string |
| [rpartition()](https://www.w3schools.com/python/ref_string_rpartition.asp) | Returns a tuple where the string is parted into three parts |
| [rsplit()](https://www.w3schools.com/python/ref_string_rsplit.asp) | Splits the string at the specified separator, and returns a list |
| [rstrip()](https://www.w3schools.com/python/ref_string_rstrip.asp) | Returns a right trim version of the string |
| [split()](https://www.w3schools.com/python/ref_string_split.asp) | Splits the string at the specified separator, and returns a list |
| [splitlines()](https://www.w3schools.com/python/ref_string_splitlines.asp) | Splits the string at line breaks and returns a list |
| [startswith()](https://www.w3schools.com/python/ref_string_startswith.asp) | Returns true if the string starts with the specified value |
| [strip()](https://www.w3schools.com/python/ref_string_strip.asp) | Returns a trimmed version of the string |
| [swapcase()](https://www.w3schools.com/python/ref_string_swapcase.asp) | Swaps cases, lower case becomes upper case and vice versa |
| [title()](https://www.w3schools.com/python/ref_string_title.asp) | Converts the first character of each word to upper case |
| translate() | Returns a translated string |
| [upper()](https://www.w3schools.com/python/ref_string_upper.asp) | Converts a string into upper case |
| [zfill()](https://www.w3schools.com/python/ref_string_zfill.asp) | Fills the string with a specified number of 0 values at the beginning |

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# Python List/Array Methods

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| **Method** | **Description** |
| [append()](https://www.w3schools.com/python/ref_list_append.asp) | Adds an element at the end of the list |
| [clear()](https://www.w3schools.com/python/ref_list_clear.asp) | Removes all the elements from the list |
| [copy()](https://www.w3schools.com/python/ref_list_copy.asp) | Returns a copy of the list |
| [count()](https://www.w3schools.com/python/ref_list_count.asp) | Returns the number of elements with the specified value |
| [extend()](https://www.w3schools.com/python/ref_list_extend.asp) | Add the elements of a list (or any iterable), to the end of the current list |
| [index()](https://www.w3schools.com/python/ref_list_index.asp) | Returns the index of the first element with the specified value |
| [insert()](https://www.w3schools.com/python/ref_list_insert.asp) | Adds an element at the specified position |
| [pop()](https://www.w3schools.com/python/ref_list_pop.asp) | Removes the element at the specified position |
| [remove()](https://www.w3schools.com/python/ref_list_remove.asp) | Removes the first item with the specified value |
| [reverse()](https://www.w3schools.com/python/ref_list_reverse.asp) | Reverses the order of the list |
| [sort()](https://www.w3schools.com/python/ref_list_sort.asp) | Sorts the list |

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# Python Dictionary Methods

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| **Method** | **Description** |
| [clear()](https://www.w3schools.com/python/ref_dictionary_clear.asp) | Removes all the elements from the dictionary |
| [copy()](https://www.w3schools.com/python/ref_dictionary_copy.asp) | Returns a copy of the dictionary |
| [fromkeys()](https://www.w3schools.com/python/ref_dictionary_fromkeys.asp) | Returns a dictionary with the specified keys and values |
| [get()](https://www.w3schools.com/python/ref_dictionary_get.asp) | Returns the value of the specified key |
| [items()](https://www.w3schools.com/python/ref_dictionary_items.asp) | Returns a list containing a tuple for each key value pair |
| [keys()](https://www.w3schools.com/python/ref_dictionary_keys.asp) | Returns a list containing the dictionary's keys |
| [pop()](https://www.w3schools.com/python/ref_dictionary_pop.asp) | Removes the element with the specified key |
| [popitem()](https://www.w3schools.com/python/ref_dictionary_popitem.asp) | Removes the last inserted key-value pair |
| [setdefault()](https://www.w3schools.com/python/ref_dictionary_setdefault.asp) | Returns the value of the specified key. If the key does not exist: insert the key, with the specified value |
| [update()](https://www.w3schools.com/python/ref_dictionary_update.asp) | Updates the dictionary with the specified key-value pairs |
| [values()](https://www.w3schools.com/python/ref_dictionary_values.asp) | Returns a list of all the values in the dictionary |

# Python Tuple Methods

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| **Method** | **Description** |
| [count()](https://www.w3schools.com/python/ref_tuple_count.asp) | Returns the number of times a specified value occurs in a tuple |
| [index()](https://www.w3schools.com/python/ref_tuple_index.asp) | Searches the tuple for a specified value and returns the position of where it was found |

# Python Set Methods

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| **Method** | **Description** |
| [add()](https://www.w3schools.com/python/ref_set_add.asp) | Adds an element to the set |
| [clear()](https://www.w3schools.com/python/ref_set_clear.asp) | Removes all the elements from the set |
| [copy()](https://www.w3schools.com/python/ref_set_copy.asp) | Returns a copy of the set |
| [difference()](https://www.w3schools.com/python/ref_set_difference.asp) | Returns a set containing the difference between two or more sets |
| [difference\_update()](https://www.w3schools.com/python/ref_set_difference_update.asp) | Removes the items in this set that are also included in another, specified set |
| [discard()](https://www.w3schools.com/python/ref_set_discard.asp) | Remove the specified item |
| [intersection()](https://www.w3schools.com/python/ref_set_intersection.asp) | Returns a set, that is the intersection of two other sets |
| [intersection\_update()](https://www.w3schools.com/python/ref_set_intersection_update.asp) | Removes the items in this set that are not present in other, specified set(s) |
| [isdisjoint()](https://www.w3schools.com/python/ref_set_isdisjoint.asp) | Returns whether two sets have a intersection or not |
| [issubset()](https://www.w3schools.com/python/ref_set_issubset.asp) | Returns whether another set contains this set or not |
| [issuperset()](https://www.w3schools.com/python/ref_set_issuperset.asp) | Returns whether this set contains another set or not |
| [pop()](https://www.w3schools.com/python/ref_set_pop.asp) | Removes an element from the set |
| [remove()](https://www.w3schools.com/python/ref_set_remove.asp) | Removes the specified element |
| [symmetric\_difference()](https://www.w3schools.com/python/ref_set_symmetric_difference.asp) | Returns a set with the symmetric differences of two sets |
| [symmetric\_difference\_update()](https://www.w3schools.com/python/ref_set_symmetric_difference_update.asp) | inserts the symmetric differences from this set and another |
| [union()](https://www.w3schools.com/python/ref_set_union.asp) | Return a set containing the union of sets |
| [update()](https://www.w3schools.com/python/ref_set_update.asp) | Update the set with the union of this set and others |

# Python Keywords

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| --- | --- |
| **Method** | **Description** |
| [and](https://www.w3schools.com/python/ref_keyword_and.asp) | A logical operator |
| [as](https://www.w3schools.com/python/ref_keyword_as.asp) | To create an alias |
| [assert](https://www.w3schools.com/python/ref_keyword_assert.asp) | For debugging |
| [break](https://www.w3schools.com/python/ref_keyword_break.asp) | To break out of a loop |
| [class](https://www.w3schools.com/python/ref_keyword_class.asp) | To define a class |
| [continue](https://www.w3schools.com/python/ref_keyword_continue.asp) | To continue to the next iteration of a loop |
| [def](https://www.w3schools.com/python/ref_keyword_def.asp) | To define a function |
| [del](https://www.w3schools.com/python/ref_keyword_del.asp) | To delete an object |
| [elif](https://www.w3schools.com/python/ref_keyword_elif.asp) | Used in conditional statements, same as else if |
| [else](https://www.w3schools.com/python/ref_keyword_else.asp) | Used in conditional statements |
| [except](https://www.w3schools.com/python/ref_keyword_except.asp) | Used with exceptions, what to do when an exception occurs |
| [False](https://www.w3schools.com/python/ref_keyword_false.asp) | Boolean value, result of comparison operations |
| [finally](https://www.w3schools.com/python/ref_keyword_finally.asp) | Used with exceptions, a block of code that will be executed no matter if there is an exception or not |
| [for](https://www.w3schools.com/python/ref_keyword_for.asp) | To create a for loop |
| [from](https://www.w3schools.com/python/ref_keyword_from.asp) | To import specific parts of a module |
| [global](https://www.w3schools.com/python/ref_keyword_global.asp) | To declare a global variable |
| [if](https://www.w3schools.com/python/ref_keyword_if.asp) | To make a conditional statement |
| [import](https://www.w3schools.com/python/ref_keyword_import.asp) | To import a module |
| [in](https://www.w3schools.com/python/ref_keyword_in.asp) | To check if a value is present in a list, tuple, etc. |
| [is](https://www.w3schools.com/python/ref_keyword_is.asp) | To test if two variables are equal |
| [lambda](https://www.w3schools.com/python/ref_keyword_lambda.asp) | To create an anonymous function |
| [None](https://www.w3schools.com/python/ref_keyword_none.asp) | Represents a null value |
| [nonlocal](https://www.w3schools.com/python/ref_keyword_nonlocal.asp) | To declare a non-local variable |
| [not](https://www.w3schools.com/python/ref_keyword_not.asp) | A logical operator |
| [or](https://www.w3schools.com/python/ref_keyword_or.asp) | A logical operator |
| [pass](https://www.w3schools.com/python/ref_keyword_pass.asp) | A null statement, a statement that will do nothing |
| [raise](https://www.w3schools.com/python/ref_keyword_raise.asp) | To raise an exception |
| [return](https://www.w3schools.com/python/ref_keyword_return.asp) | To exit a function and return a value |
| [True](https://www.w3schools.com/python/ref_keyword_true.asp) | Boolean value, result of comparison operations |
| [try](https://www.w3schools.com/python/ref_keyword_try.asp) | To make a try...except statement |
| [while](https://www.w3schools.com/python/ref_keyword_while.asp) | To create a while loop |
| with | Used to simplify exception handling |
| yield | To end a function, returns a generator |

# Python Random Module

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| --- | --- |
| **Method** | **Description** |
| [seed()](https://www.w3schools.com/python/ref_random_seed.asp) | Initialize the random number generator |
| [getstate()](https://www.w3schools.com/python/ref_random_getstate.asp) | Returns the current internal state of the random number generator |
| [setstate()](https://www.w3schools.com/python/ref_random_setstate.asp) | Restores the internal state of the random number generator |
| [getrandbits()](https://www.w3schools.com/python/ref_random_getrandbits.asp) | Returns a number representing the random bits |
| [randrange()](https://www.w3schools.com/python/ref_random_randrange.asp) | Returns a random number between the given range |
| [randint()](https://www.w3schools.com/python/ref_random_randint.asp) | Returns a random number between the given range |
| [choice()](https://www.w3schools.com/python/ref_random_choice.asp) | Returns a random element from the given sequence |
| [choices()](https://www.w3schools.com/python/ref_random_choices.asp) | Returns a list with a random selection from the given sequence |
| [shuffle()](https://www.w3schools.com/python/ref_random_shuffle.asp) | Takes a sequence and returns the sequence in a random order |
| [sample()](https://www.w3schools.com/python/ref_random_sample.asp) | Returns a given sample of a sequence |
| [random()](https://www.w3schools.com/python/ref_random_random.asp) | Returns a random float number between 0 and 1 |
| [uniform()](https://www.w3schools.com/python/ref_random_uniform.asp) | Returns a random float number between two given parameters |
| [triangular()](https://www.w3schools.com/python/ref_random_triangular.asp) | Returns a random float number between two given parameters, you can also set a mode parameter to specify the midpoint between the two other parameters |

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# Python常用函数与方法

**常用的数学函数**

| **函数名** | **用法** | **模块** | **说明** |
| --- | --- | --- | --- |
| abs(x) | 返回数字的绝对值 | 内置 |  |
| round(x [, n]) | 返回浮点数x的四舍五入值 | 内置 | n表示小数点位数 |
| max(x1, x2, …) | 返回给定参数的最大值 | 内置 | 参数可以为序列 |
| min(x1, x2, …) | 返回给定参数的最小值 | 内置 | 参数可以为序列 |
| ceil(x) | 返回数字的上入整数 | math | 例如：math.ceil(4.1)返回5 |
| exp(x) | 返回e的x次幂 | math |  |
| fabs(x) | 返回数字的绝对值 | math |  |
| floor(x) | 返回数字的下舍整数 | math |  |
| log(x) | 返回x的自然对数 | math | x>0 |
| log10(x) | 返回以10位基数的x对数 | math | x>0 |
| modf(x) | 返回x的整数部分和小数部分 | math | 两部分的数值符号与x相同，整数部分以浮点型表示 |
| power(x, y) | x\*\*y运算后的值 | math | x\*\*y表示x的y次方 |
| sqrt(x) | 返回数字x的平方根 | math |  |