

Math Operations

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|--------------------|-----------------------------|
| <code>x + y</code> | Adds x and y |
| <code>x - y</code> | Subtracts y from x |
| <code>x * y</code> | Multiplies the x by y |
| <code>x / y</code> | Divides x by y |
| <code>x % y</code> | Remainder of x divided by y |

Math Functions

| | |
|-------------------------------|---|
| <code>math.random(x,y)</code> | Returns a random number between x and y |
| <code>math.floor(x)</code> | Rounds down x |
| <code>math.ceil(x)</code> | Rounds up x |
| <code>math.abs(x)</code> | Returns the absolute value of x |
| <code>math.sqrt(x)</code> | Returns the square of x |
| <code>math.pi</code> | Returns pi |

Basic References

| | |
|-------------------------|---|
| <code>.game</code> | Parent of all running game services |
| <code>.workspace</code> | References Workspace, circumvents <code>game.Workspace</code> |
| <code>.script</code> | References the script itself |
| <code>.parent</code> | References the parent of an object |

For Loops

```
for i = start, end, count do
    --Code
end
for i = 1, 5 do
    print("Iteration : ", i)
end
local fruits = {"Apple ", "Banana ", "Cherry "}
```

For Loops (cont)

```
> for index, value in ipairs(fruits) do
    print(index, value)
end
```

While Loops

```
while condition do
    -- Code
end
local counter = 1
while counter <= 5 do
    print("Counter: ", counter)
    counter = counter + 1 -- Increment the counter to avoid an infinite loop
end
```

Wait routines

`wait()` Pauses the execution of the script for a set duration. Tied to `game framerate`

`task.wait()` Pauses the execution of the script for a set duration. More accurate, Independent of `framerate`.

`task.delay()` Runs a function after a specified delay but does not block the current script.

`RunService.Heartbeat` Creates a custom wait loop. High precision, frame-dependent tasks.

`Debris.AdItem()` Used for timed object destruction but can act as a timer mechanism.

Basic Threading

`task.spawn()` Runs a function in a new thread after yielding briefly (~1/30th of a second)

`task.defer()` Schedules a function to run in a new thread without yielding at all. It is executed after the current thread completes.

`coroutine.create()` Creates a new coroutine that is paused until explicitly resumed.

`coroutine.resume()` Resumes a paused coroutine.

`coroutine.yield()` Pauses the current coroutine until it is resumed again.

`coroutine.status()` Returns the status of a coroutine ("suspended", "running", or "dead").

`coroutine.wrap()` Creates a coroutine and returns a function that, when called, resumes the coroutine.