

duwadam@ucsc.edu

```
strokeWeight(x);
```

```
line(x1, y1, x2, y2);
```

$\overbrace{\hspace{10em}}$
x1, y1 x2, y2

```
println("This is a message");
```

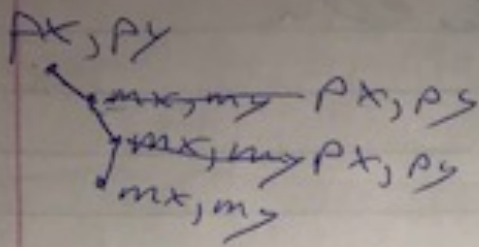
```
random(x);
```

↳ gives a random number between 0 and x

Variable — a construct that stores a value. The value can change.

System Variables — variables provided by Processing.

- frameCount — # of frames that have been shown since our program started.
- mouseX, mouseY — mouse's location
- pmouseX, pmouseY — mouse's location of previous frame.
- width, height — width and height of screen.



```
void mousePressed () {
```

```
    // gets called when the mouse is
    // pressed
```

```
}
void keyPressed () {
```

```
    // gets called when a key is
    // pressed
```

Variables (user-defined variables)

int \rightarrow integer in range of $-2^{31} - 2^{31}$

1.) Declare our variable

2.) Give our variable a value (initializing)

```
int x = 20;
```

```
x = 30;
```



int - integer
float - number with a decimal
boolean - true or false
char - a single character

```
int xVal = height;  
int x = 10;
```

```
float p = 3.14;
```

```
boolean isRaining = false;
```

```
char letter = 'a'; // from ASCII chart
```

data type name of our variable variable's value

```
p = 3;
```

```
int x = 10;
```

```
x = x + 5; // x's value is 15
```

↓
10 + 5

```
x = x + 20;
```

↓
15 + 20



scope - where a variable exists
(in terms of which block)

~~*~~

Arithmetic Operations

+ addition

- subtraction

* multiplication

/ division

`int y = 10;`
`y = y - 9;`

`int x = 11;`
`x = x / 2;`

`int / int` - integer division

Perform regular division, get rid of decimal
(Truncating)

`%` modulus - the remainder after division.

$$11 \% 2 = 1$$

$$11 \% 3 = 2$$

$$\begin{array}{r} 3 \overline{) 11} \\ 9 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 11 \rightarrow 5 \frac{1}{2} \\ 2 \overline{) 11} \\ 10 \\ \hline 1 \end{array}$$

$$10 \% 2 = 0$$

$$\begin{array}{r} 5 \\ 2 \overline{)10} \\ \underline{10} \\ 0 \end{array}$$

$$3 \% 5 = 3$$



← remainder
result of
modulus

/ (floating)

$$3.5 / 2 = 1.75$$

$$3.0 / 2 = 1.5$$

(integer division) $3 / 2 = 1$

int x, y;

int x = 3, y = 5;

int x;
int y;

int x = 3;
int y = 5;

int x = 5, y;

int x, y = 10;

Casting - converting one data type into another data type

X $\text{int } x = 3 * 1.5;$

~~$\text{int } x = 3 * 1.5;$~~

$\text{int } x = \text{int}(3 * 1.5);$

$\text{int}(4.5)$
4

$\text{int } x = (\text{int})(3 * 1.5);$

$\text{int } x = (\text{int})(3 * 1.5);$

~~$\text{float } z = (\text{int})(3 * 15);$~~

$\text{float } z = (\text{float})(3 * 15);$
45.0

$\text{float } y = 3 * 15;$
45.0

$$x = 0$$

$$x = 0$$

$$x = 2$$

$$x = 1$$

$$x = 10$$

$$x = \text{error}$$