# lightFalloff()

Sets the falloff rate for pointLight() and spotLight().

A light's falloff describes the intensity of its beam at a distance. For example, a lantern has a slow falloff, a flashlight has a medium falloff, and a laser pointer has a sharp falloff.

`lightFalloff()` has three parameters, `constant`, `linear`, and `quadratic`. They're numbers used to calculate falloff at a distance, `d`, as follows:

```
falloff = 1 / (constant + d * linear + (d * d) * quadratic)
```

Note: `constant`, `linear`, and `quadratic` should always be set to values greater than 0.

## Examples

```
// Click and drag the mouse to view the scene from differe
angles.
// Double-click to change the falloff rate.

let useFalloff = false;

function setup() {
  createCanvas(100, 100, WEBGL);

  describe('A sphere drawn against a gray background. The
intensity of the light changes when the user double-clicks.');
}

function draw() {
  background(50);

  // Enable orbiting with the mouse.
  orbitControl();

  // Set the light falloff.
  if (useFalloff === true) {
    lightFalloff(2, 0, 0);
  }

  // Add a white point light from the front.
  pointLight(255, 255, 255, 0, 0, 100);

  // Style the sphere.
  noStroke();

  // Draw the sphere.
```

## Syntax

```
lightFalloff(constant, linear, quadratic)
```

## Parameters

| | |
|---|---|
| constant | Number: constant value for calculating falloff. |
| linear | Number: linear value for calculating falloff. |
| quadratic | Number: quadratic value for calculating falloff. |

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## Related References

**ambientLight**
Creates a light that shines from all directions.

**directionalLight**
Creates a light that shines in one direction.

**imageLight**
Creates an ambient light from an image.

**lightFalloff**
Sets the falloff rate for pointLight() and spotLight().