[**Generate random number between two numbers in JavaScript**](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript)

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2510

Is there a way to generate a *random number* in a *specified range* with JavaScript ?

**For example**: a specified range from *1 to 6* were the random number could be either *1, 2, 3, 4, 5, or 6*.

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asked Feb 10, 2011 at 16:41

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Math.floor( Math.random() \* 7 )

– [Amjad Masad](https://stackoverflow.com/users/554135/amjad-masad)

[Feb 10, 2011 at 16:45](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment5534229_4959975)

* 89

Sure.. Math.floor(Math.random()\*6+1)

– [Amjad Masad](https://stackoverflow.com/users/554135/amjad-masad)

[Feb 11, 2011 at 0:21](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment5540241_4959975)

* 4

Nabil Kadimi wrote an article on [how to generate negative random numbers](http://www.kadimi.com/en/negative-random) too.

– [madc](https://stackoverflow.com/users/709769/madc)

[Sep 4, 2012 at 13:44](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment16454985_4959975)

* here is a useful gist: [gist.github.com/kerimdzhanov/7529623](https://gist.github.com/kerimdzhanov/7529623)

– [Dan K.K.](https://stackoverflow.com/users/1040889/dan-k-k)

[Nov 18, 2013 at 15:43](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment29865273_4959975)

* 1

Does this answer your question? [Generating random whole numbers in JavaScript in a specific range](https://stackoverflow.com/questions/1527803/generating-random-whole-numbers-in-javascript-in-a-specific-range)

– [Balto](https://stackoverflow.com/users/13603485/balto)

[Mar 29 at 9:20](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment133835172_4959975)

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**32 Answers**

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3294

function randomIntFromInterval(min, max) { // min and max included

return Math.floor(Math.random() \* (max - min + 1) + min)

}

const rndInt = randomIntFromInterval(1, 6)

console.log(rndInt)

Expand snippet

What it does "extra" is it allows random intervals that do not start with 1. So you can get a random number from 10 to 15 for example. Flexibility.

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answered Aug 29, 2011 at 9:25

[[](https://stackoverflow.com/users/383148/francisc)](https://stackoverflow.com/users/383148/francisc)

[Francisc](https://stackoverflow.com/users/383148/francisc)

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* 5

this is also great because if someone doesn't include the to arg, the from arg doubles as the max

– [Jason](https://stackoverflow.com/users/7173/jason)

[Feb 6, 2013 at 1:53](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment20592453_7228322)

* 24

Hello. This is from MDN: Returns a floating-point, pseudo-random number in the range [0, 1) that is, from 0 (inclusive) up to but not including 1 (exclusive), which you can then scale to your desired range. ([developer.mozilla.org/en-US/docs/JavaScript/Reference/…](https://developer.mozilla.org/en-US/docs/JavaScript/Reference/Global_Objects/Math/random))

– [Francisc](https://stackoverflow.com/users/383148/francisc)

[Apr 9, 2013 at 20:12](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment22662145_7228322)

* 6

Read the above comment. Random is inside [0,1), not [0,1].

– [Francisc](https://stackoverflow.com/users/383148/francisc)

[Jun 21, 2013 at 13:41](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment24975076_7228322)

* 7

Works great if the lower number is 0.

– [Robin Zimmermann](https://stackoverflow.com/users/1360592/robin-zimmermann)

[Oct 27, 2013 at 20:47](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment29131812_7228322)

* 7

Note that this solution is correct only if min and max are integers, otherwise you can get a result in the interval [min, ceil(max)]. I.e. you can get a result which is out of range because is higher than max.

– [collimarco](https://stackoverflow.com/users/51387/collimarco)

[Jul 7, 2014 at 9:40](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment38128573_7228322)

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2512

**Important**

The following code works only if the minimum value is `1`. It does not work for minimum values other than `1`.

If you wanted to get a random integer between 1 (**and only 1**) and 6, you would calculate:

const rndInt = Math.floor(Math.random() \* 6) + 1

console.log(rndInt)

Expand snippet

Where:

* 1 is the start number
* 6 is the number of possible results (1 + start *(6)* - end *(1)*)

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answered Feb 10, 2011 at 16:45

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* 54

While this would work, @Mike, it would be best to point out the more generic version as Francisc has it below :-).

– [RaymondMachira](https://stackoverflow.com/users/1733864/raymondmachira)

[Aug 5, 2013 at 14:38](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment26427103_4960020)

* 74

-1. After Googling I found this question the title is ""Generate random value between two numbers in Javascript"." Won't work if the min value is 0

– [Ydhem](https://stackoverflow.com/users/1719496/ydhem)

[Oct 8, 2013 at 1:44](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment28474964_4960020)

* 21

Doesn't work if you want a number between two larger numbers eg. Math.floor(Math.random() \* 900) + 700

– [Rob](https://stackoverflow.com/users/149615/rob)

[Nov 25, 2013 at 16:12](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment30113422_4960020)

* 22

That only works if the minimum is 1. If the min is 2 and we still use Math.floor(Math.random() \* 6) + 2 means that if Math.random() results into 0.99 our random value would be 7

– [antitoxic](https://stackoverflow.com/users/339872/antitoxic)

[Dec 12, 2013 at 16:15](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment30728285_4960020)

* 34

This code not good because, does not work with any number. @Francisc code is the correct.

– [Lion King](https://stackoverflow.com/users/459943/lion-king)

[Dec 22, 2013 at 14:39](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment31059211_4960020)

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480

[**Math.random()**](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Math/random)

Returns an [integer random number](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Math/random#Getting_a_random_integer_between_two_values_inclusive) between min (**included**) and max (**included**):

function randomInteger(min, max) {

return Math.floor(Math.random() \* (max - min + 1)) + min;

}

Or [any random number](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Math/random#Getting_a_random_number_between_two_values) between min (**included**) and max (**not included**):

function randomNumber(min, max) {

return Math.random() \* (max - min) + min;

}

Useful examples (integers):

// 0 -> 10

Math.floor(Math.random() \* 11);

// 1 -> 10

Math.floor(Math.random() \* 10) + 1;

// 5 -> 20

Math.floor(Math.random() \* 16) + 5;

// -10 -> (-2)

Math.floor(Math.random() \* 9) - 10;

\*\* And always nice to be reminded (Mozilla):

Math.random() does not provide cryptographically secure random numbers. Do not use them for anything related to security. Use the Web Crypto API instead, and more precisely the window.crypto.getRandomValues() method.

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answered Jun 11, 2014 at 0:23

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* Something that confused me... the Math.floor(..) ensures that the number is an integer where Math.round(..) would give an uneven distribution. Ref: [developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/…](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Math/random)

– [alikuli](https://stackoverflow.com/users/3777098/alikuli)

[Aug 3, 2016 at 10:45](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment64856602_24152886)

* 2

I trust this answer. Can anyone give a link or clear explanation of why this works? Perhaps an example of how Math.round would give a bias, and why that means we have to use this rather complex-seeming formula?

– [Robin Andrews](https://stackoverflow.com/users/3042018/robin-andrews)

[Oct 11, 2016 at 9:05](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment67226713_24152886)

* 9

@alikuli For a range of [1,2], there is 25% chance Math.random() would give you a number from one of these [0,0.49], [0.5,0.99], [1,1.49], [1.5,1.99]. Rounding those intervals would result in 0, 1, 1, 2 which is not an even distribution. Flooring them results in 0, 0, 1, 1.

– [pishpish](https://stackoverflow.com/users/2227168/pishpish)

[Mar 30, 2017 at 22:24](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment73337350_24152886)

* 1

@shuji This *is*, among others, the correct answer. I just wanted to clarify why using Math.round over Math.floor would give different results.

– [pishpish](https://stackoverflow.com/users/2227168/pishpish)

[Nov 20, 2017 at 13:23](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment81739029_24152886)

* The most accurate solution I've found: function getRandomInt(min, max) { return Math.round((min - 0.5) + Math.random() \* (max - min + 1)); }

– [Sadik](https://stackoverflow.com/users/4043258/sadik)

[May 23, 2020 at 14:34](https://stackoverflow.com/questions/4959975/generate-random-number-between-two-numbers-in-javascript#comment109610561_24152886)

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**TL;DR**

function generateRandomInteger(min, max) {

return Math.floor(min + Math.random()\*(max - min + 1))

}

To get the random number generateRandomInteger(-20, 20);

**EXPLANATION BELOW**

integer - A number which is not a fraction; a whole number

We need to get a random number , say **X** between min and max. X, min and max are all integers

i.e **min <= X <= max**

If we subtract min from the equation, this is equivalent to

**0 <= (X - min) <= (max - min)**

Now, lets multiply this with a random number **r** which is

**0 <= (X - min) \* r <= (max - min) \* r**

Now, lets add back **min** to the equation

**min <= min + (X - min) \* r <= min + (max - min) \* r**

For, any given **X**, the above equation satisfies only when **r** has range of **[0,1]** For any other values of **r** the above equation is unsatisfied.

[Learn more about ranges [x,y] or (x,y) here](https://stackoverflow.com/questions/4396290/what-does-this-square-bracket-and-parenthesis-bracket-notation-mean-first1-last)

Our next step is to find a function which always results in a value which has a range of [0,1]

Now, the range of **r** i.e [0,1] is very similar to Math.random() function in Javascript. Isn't it?

The Math.random() function returns a floating-point, pseudo-random number in the range [0, 1); that is, from 0 (inclusive) up to but not including 1 (exclusive)

**Random Function using Math.random() 0 <= r < 1**

Notice that in Math.random() left bound is inclusive and the right bound is exclusive. This means min + (max - min) \* r will evaluate to having a range from [min, max)

To include our right bound i.e [min,max] we increase the right bound by 1 and floor the result.

function generateRandomInteger(min, max) {

return Math.floor(min + Math.random()\*(max - min + 1))

}

**To get the random number**

generateRandomInteger(-20, 20);

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