grouping & box model

element structure

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Flow

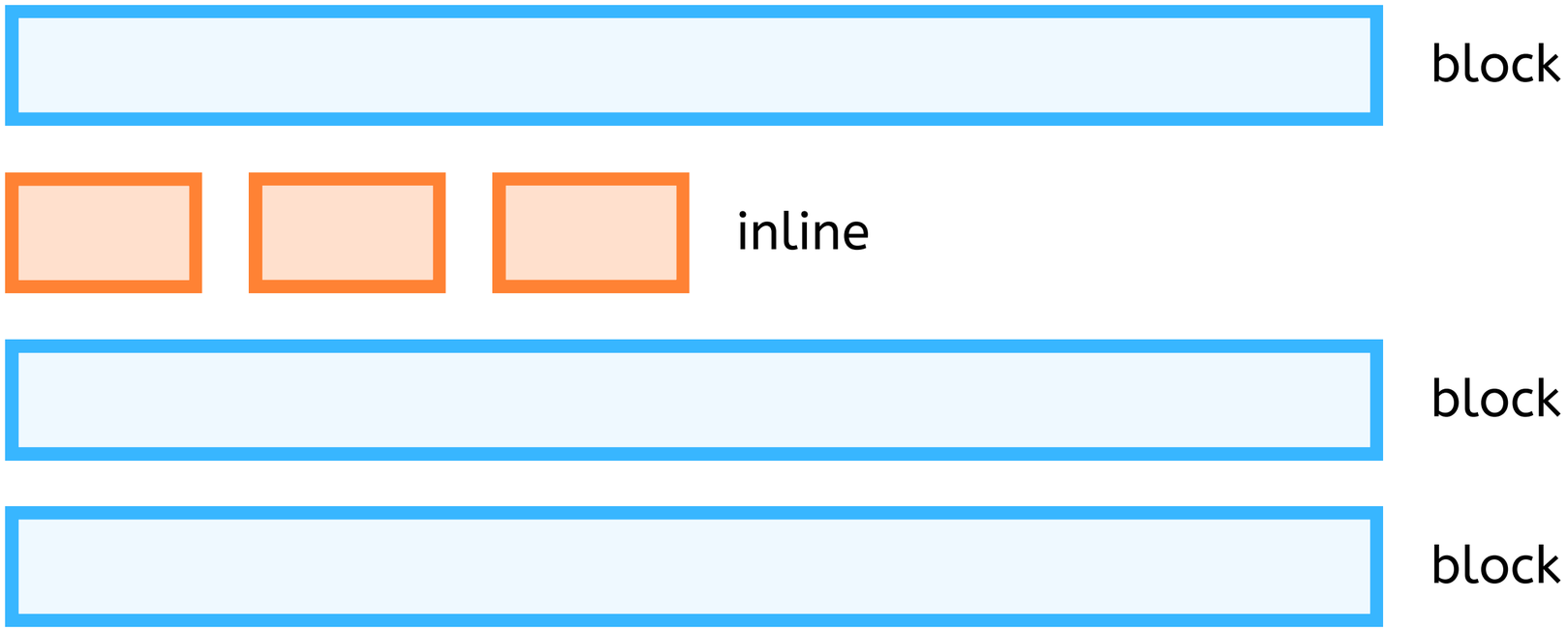
y a H H
o r o i
u e w !
?

Flow

Hi!
How are you?

MDN | Flow layout

Block or Inline



MDN | Block and inline layout in normal flow

Block

If a box has an outer display type of block, then:

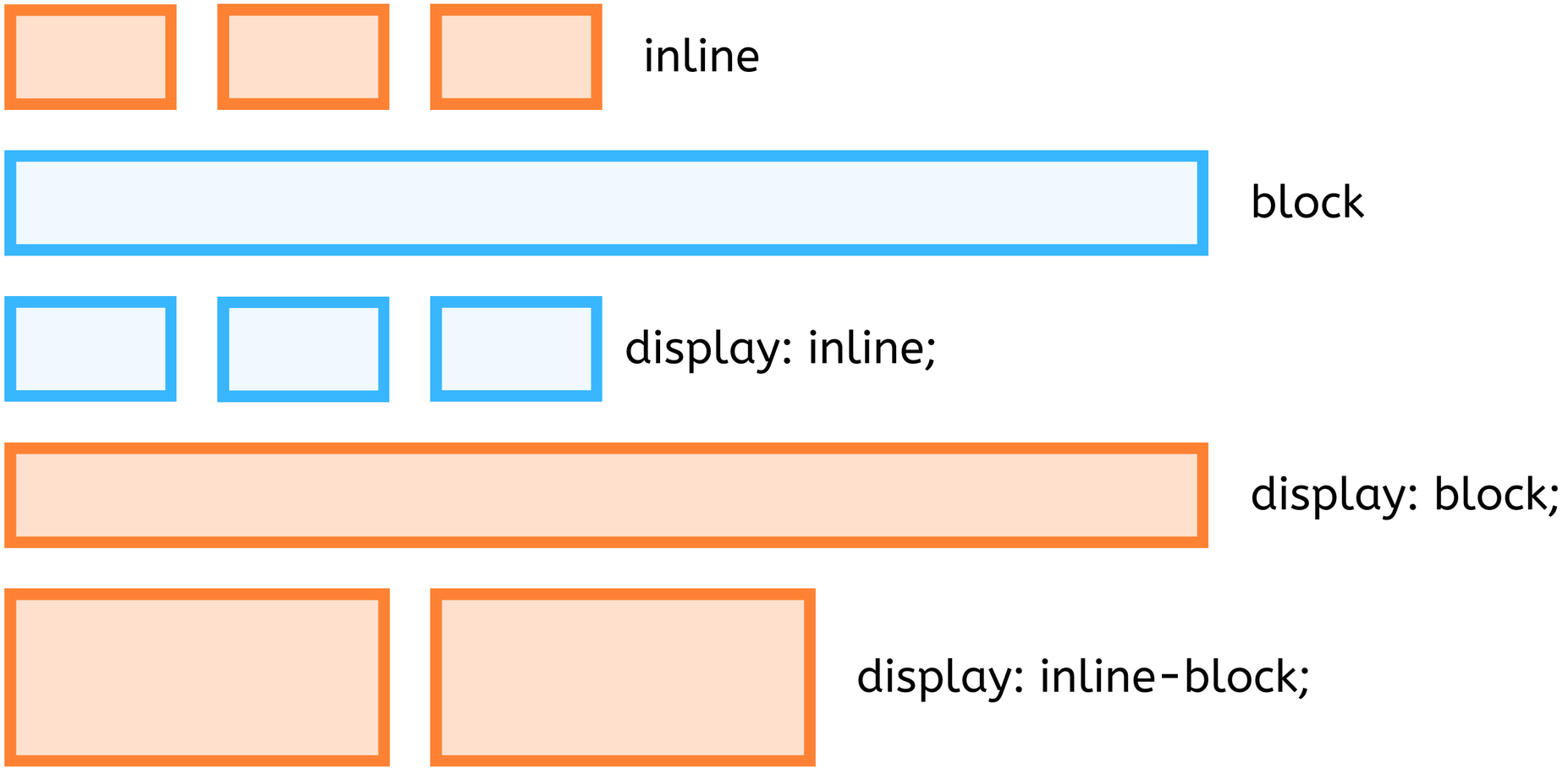
- The box will **break onto a new line**.
- The width and height properties are **respected**.
- Padding, margin and border will cause other elements to be pushed away from the box.
- If width is not specified, the box will **extend in the inline** direction to **fill the space** available in its container.

Inline

If a box has an outer display type of inline, then:

- The box will **not break** onto a new line.
- The width and height properties will **not apply**.
- Top and bottom padding, margins, and borders will apply but will not cause other inline boxes to move away from the box.
- Left and right padding, margins, and borders will apply and will cause other inline boxes to move away from the box.

Block, Inline or...



Is an **inline-block** <*span*> the same as an **inline-block** <*div*>?

display: **block;**

The element generates a **block box**, generating **line breaks** both before and after the element when in the normal flow.

display: **inline;**

The element generates one or more **inline boxes** that **do not generate line breaks** before or after themselves. In normal flow, the next element will be on the same line if there is space.

display: **inline-block;**

The element generates a **block box** that will be **flowed with surrounding content** as if it were a single inline box (behaving much like a replaced element would).

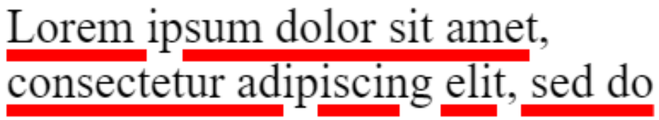
display: **none;**

Turns off the display of an element so that **it has no effect on layout** (the document is rendered as though the element did not exist). All descendant elements also have their display turned off.

Css properties

Property: text-decoration

The text-decoration property sets the appearance of decorative lines on text



Properties

```
text-decoration-color: red
text-decoration-style: solid
text-decoration-line: underline
text-decoration-thickness: 3px
```

Shorthand property

```
text-decoration: solid underline red 3px
```

MDN | Text-decoration

Property: text-align

The text-align property sets the horizontal alignment of the content inside a block element or table-cell box.

Properties

```
text-align: start;
/*Aligns text according
to the direction of document*/
```

```
text-aling: left;
/*Aligns the text to
the left of the container*/
```

```
<html dir="rtl">
```

Lorem ipsum dolor sit amet,
consectetur adipiscing
elit, sed

Lorem ipsum dolor sit amet,
consectetur adipiscing
elit, sed

Property: text-align

The text-align property sets the horizontal alignment of the content inside a block element or table-cell box.

Properties

```
text-align: end;
/*Aligns text according
to the direction of document*/
```

```
text-aling: right;
/*Aligns the text to
the right of the container*/
```

```
<html dir="ltr">
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed

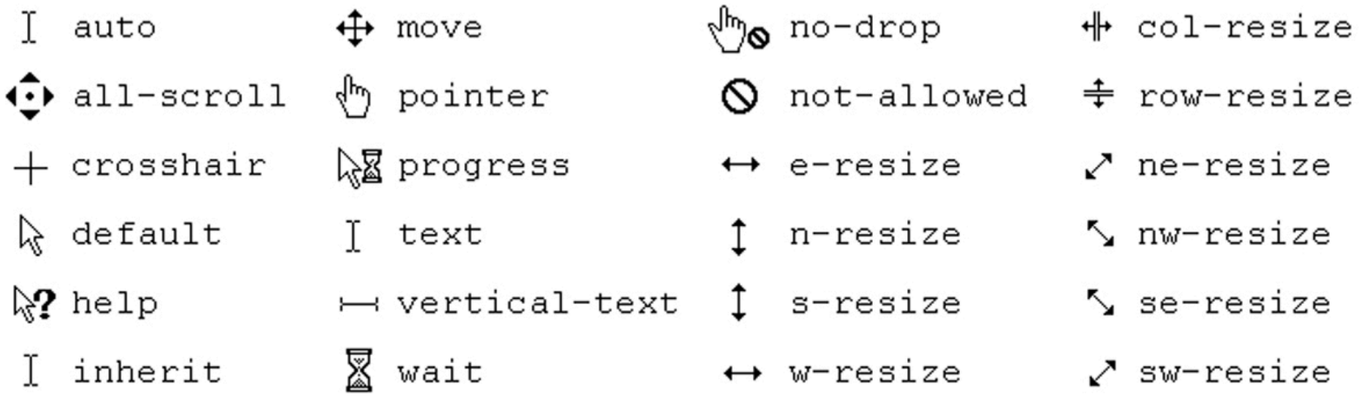
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed

MDN | Text-align

Property: cursor

The cursor property sets the mouse cursor, if any, to show when the mouse pointer is over an element.

```
.myClass {
  cursor: help;
  background-color: yellow;
  text-align: center;
}
```



MDN | Cursor

Property: Width

- Sets the width of a **block-level** element or **img**
- Doesn't work for inline elements, unless their display property is changed
- Accepts a variety of length units

```
#sidebar {
  width: 200px;
  width: 20em; /* relative to font size */
  width: 20%; /* relative to containing element width */
  width: 20vw; /* relative to viewport: 1vw = 1% viewport width */
}
```

The most used are: px, rem, em, vw, vh, % (percentage)

Property: Height

Works like width, with all the same units

```
.niceClass {
  height: 200px;
  height: 20em; /* relative to font size */
  height: 20%; /* relative to containing element width */
  height: 20vw; /* relative to viewport: 1vw = 1% viewport width */
}
```

[The lenghts of CSS]

[CSS Units]

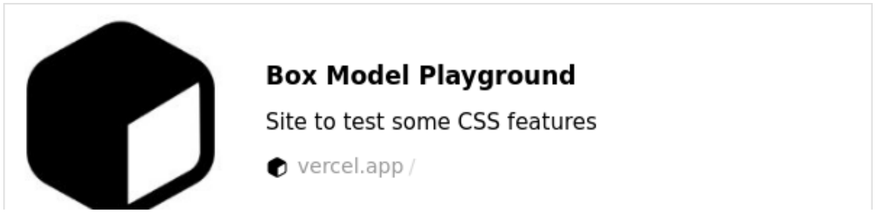
[MDN | Values and Units]

What about **inline-size** and **block-size**?

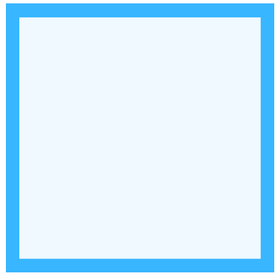
Min & max properties

- Set upper or lower limits to the size of elements
- An element cannot be smaller than its min-width or min-height
- An element cannot be larger than its max-width or max-height

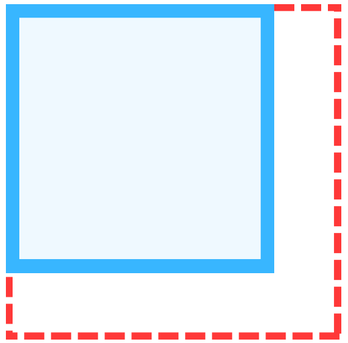
Want to play?



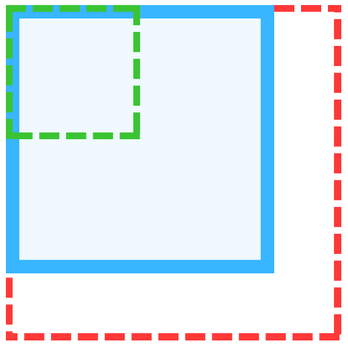
 with fixed class



 with fixed and max classes



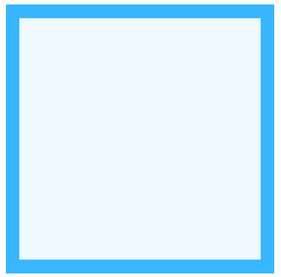
 with fixed, max and min classes



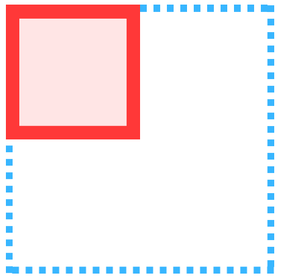
What width and height will have?

```
.fixed {
width: 1vh; /* 100px */
height: 1vh; /* 100px */
}

.max {
max-width: 150px;
max-height: 150px;
}

.min {
min-width: 50px;
min-height: 50px;
}
```

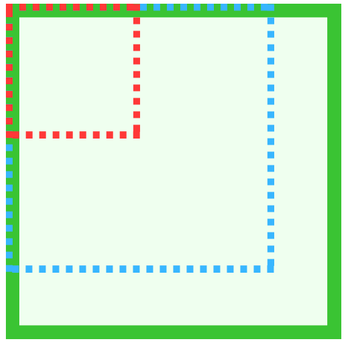
 with **fixed** class



 with **fixed** and **max** classes



 with **fixed**, **max** and **min** classes



What width and height will have?

```
.fixed {
width: 1vh; /* 100px */
height: 1vh; /* 100px */
}

.max {
max-width: 50px;
max-height: 50px;
}

.min {
min-width: 150px;
min-height: 150px;
}
```

Note: ***max-width*** *“overrides”* ***width***, *but* ***min-width*** *“overrides”* ***max-width***.

Calc()

- Property values can be determined by **calculation** using the CSS calc() function
- Different units can be combined together

```
#letsCalculate  {
  width: calc(10em - 10px);
  height: calc(2em - 1rem);
  min-height: calc(50% + 200px);
  min-width: calc(2rem + 2px);
}
```

```
#scaryStuff  {
  width: calc(0 + 20px);
  height: calc(50% -8px);
  max-width: calc(1.25rem/125%);
}
```

What about * and / ?

MDN | calc()

Calc(): Are we brave enough?

```
#areWeBraveEnough  {
  --widthA: 100px;
  --widthB: calc(var(--widthA) / 2);
  --widthC: calc(var(--widthB) / 2);
  width: var(--widthC);
}
```

Checkpoint reached

Flow

Text-decoration

Text-align

Cursor

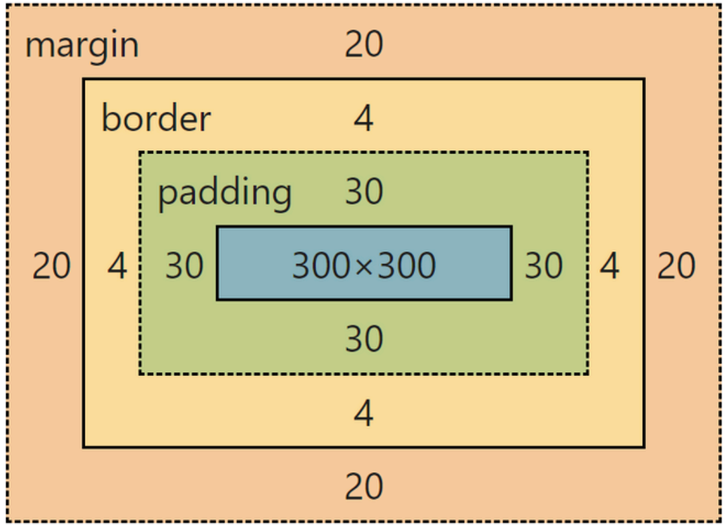
Max&Min

Calc

The box model

Overview

padding
border
box-sizing
margin



Content-box

This is the core area where the element's content resides, such as text, images, or videos.

Padding

Space between the border and the content

Border

The edge around the box

Margin

Transparent area around the box that separates it from other elements

MDN | Box Model

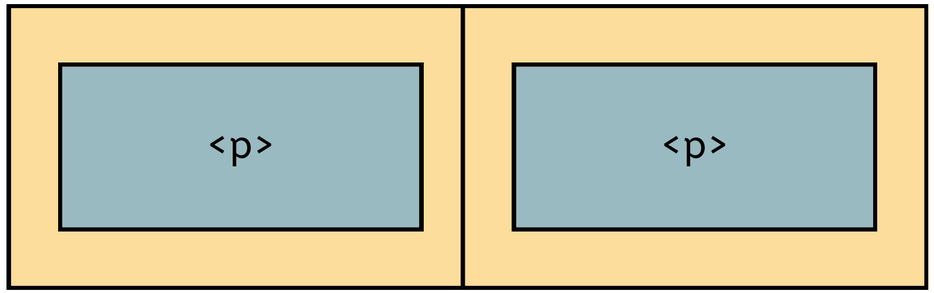
let’s play!

```
p {
 display: inline-block
}
```

if I want to place a limit on my elements what should I do?

let’s play!

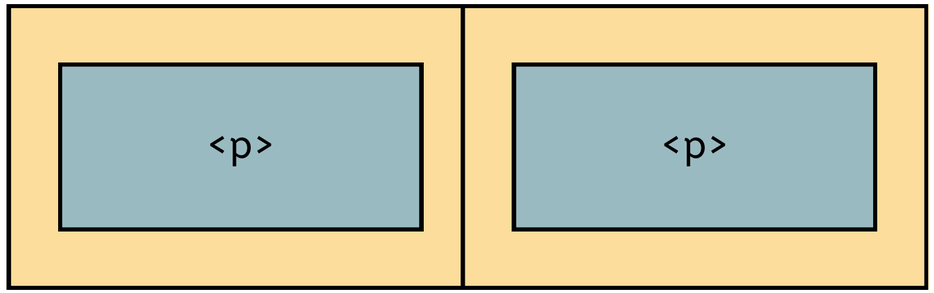
```
p {
 display: inline-block;
 border: ------------;
}
```



BORDER

let’s play!

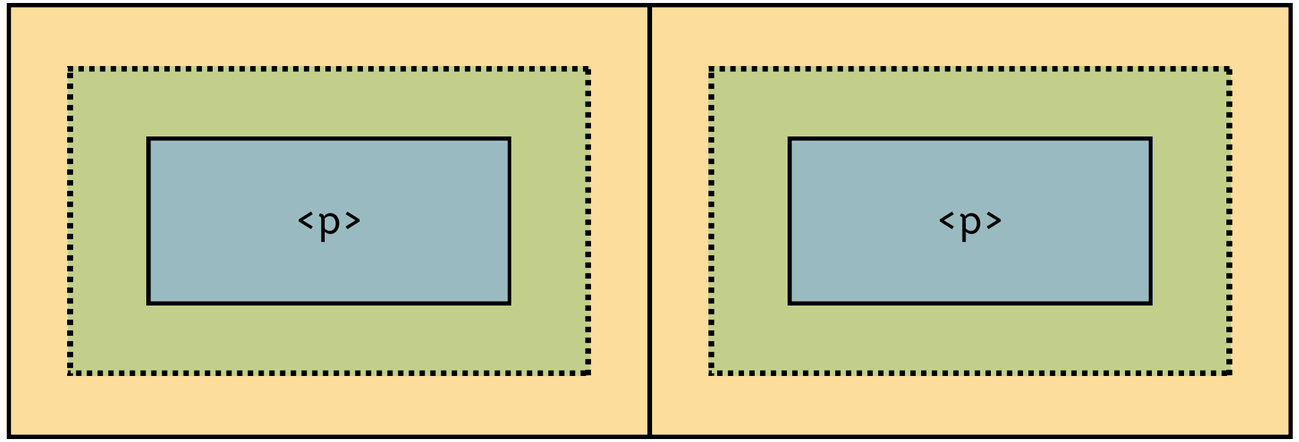
```
p {
 display: inline-block;
 border: ------------;
}
```



if I want to place a distance inside my elements what should I do?

let’s play!

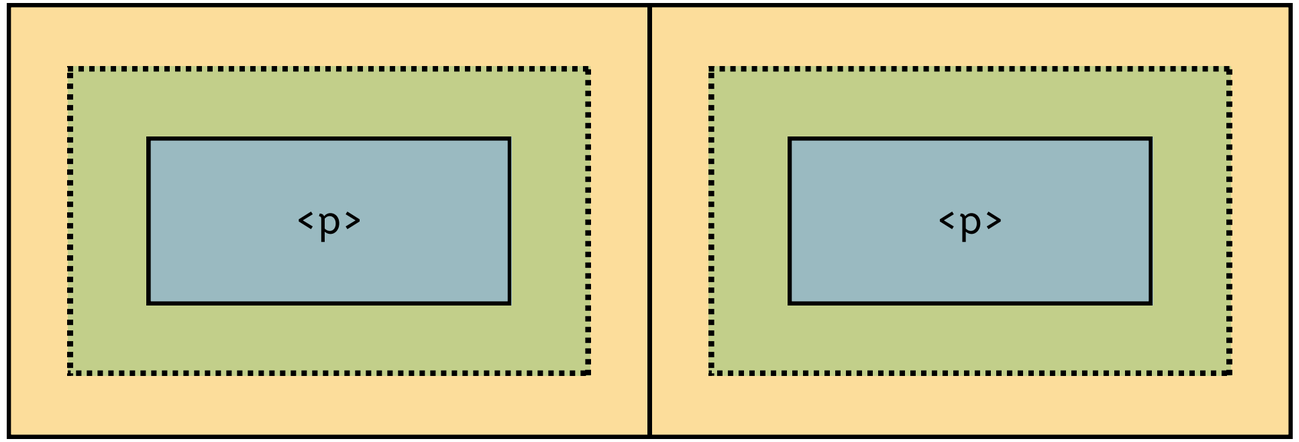
```
p {
 display: inline-block;
 border: ------------;
 padding: ------------;
}
```



PADDING

let’s play!

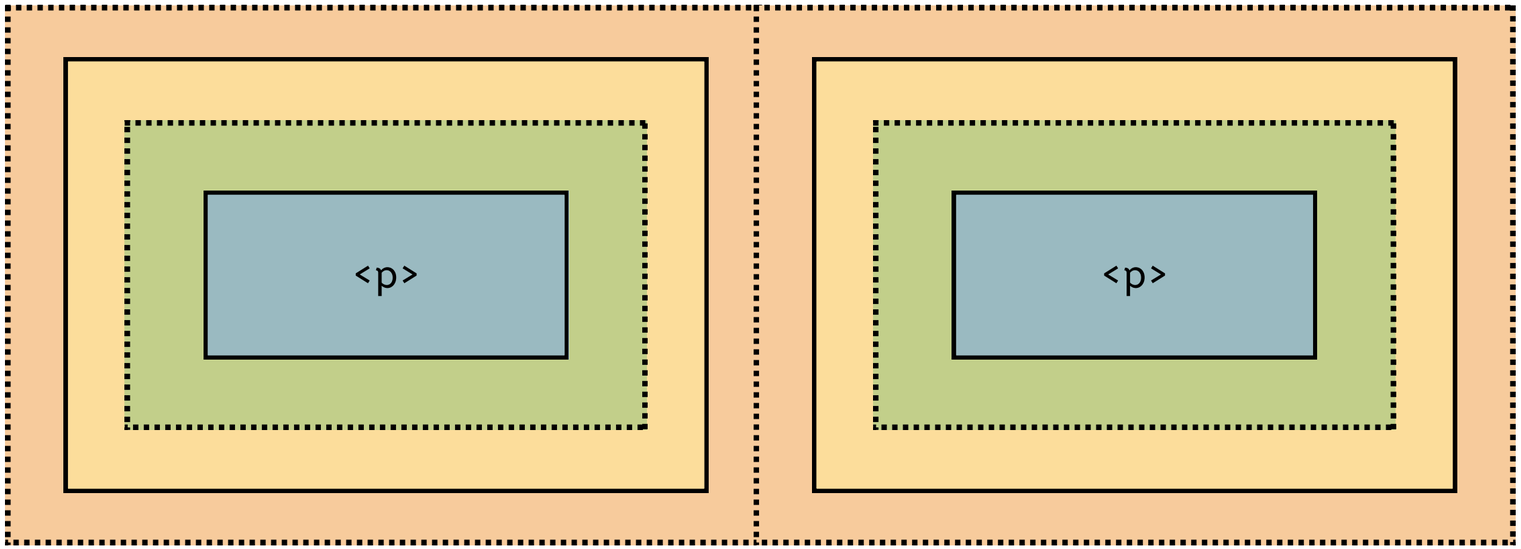
```
p {
 display: inline-block;
 border: --------------;
 padding: ------------;
}
```



if I want to place a distance outside the elements what should I do?

let’s play!

```
p {
 display: inline-block;
 border: ------------;
 padding: ------------;
 margin: ------------;
}
```



MARGIN

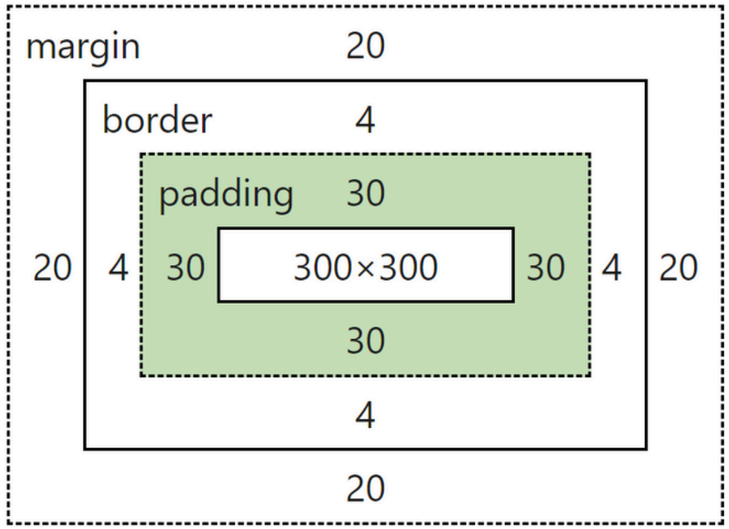
overview

Padding

border

box-sizing

margin



Properties

```
padding-top: 10px;
padding-right: 15%;
padding-bottom: 10em;
padding-left: 15vw;
```

Shorthand property

```
padding: 10px; /* trbl */
padding: 10px 15%; /* tb-rl */
padding: 10px 15% 10em; /* t-rl-b */
padding: 10px 15% 10em 15vw; /* t-r-b-l */
```

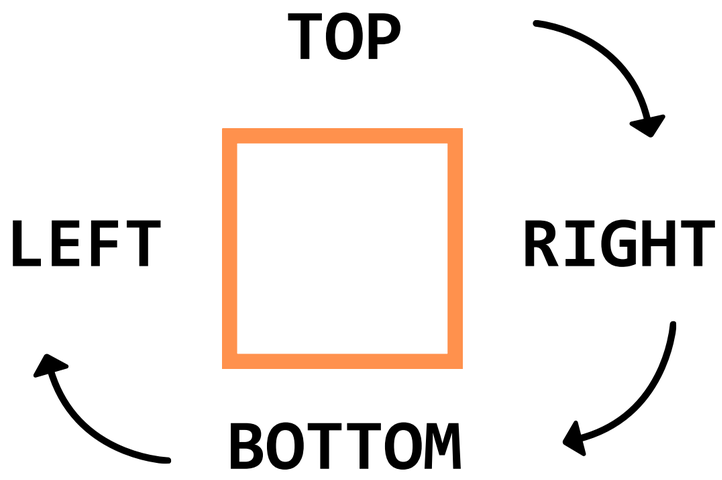
overview

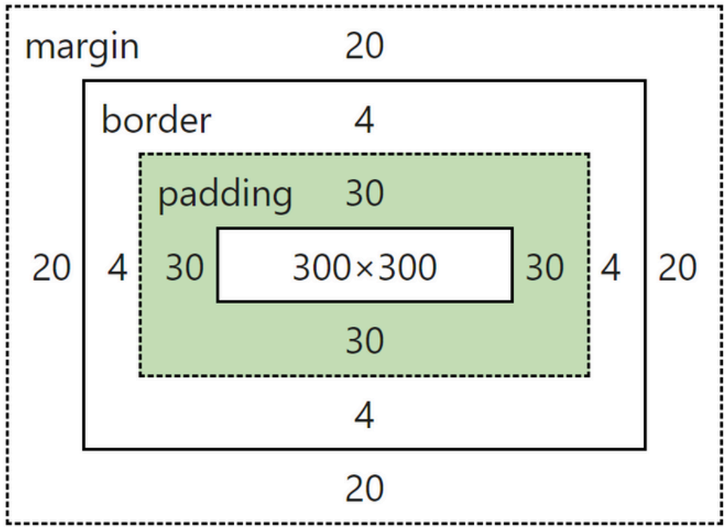
Padding

border

box-sizing

margin



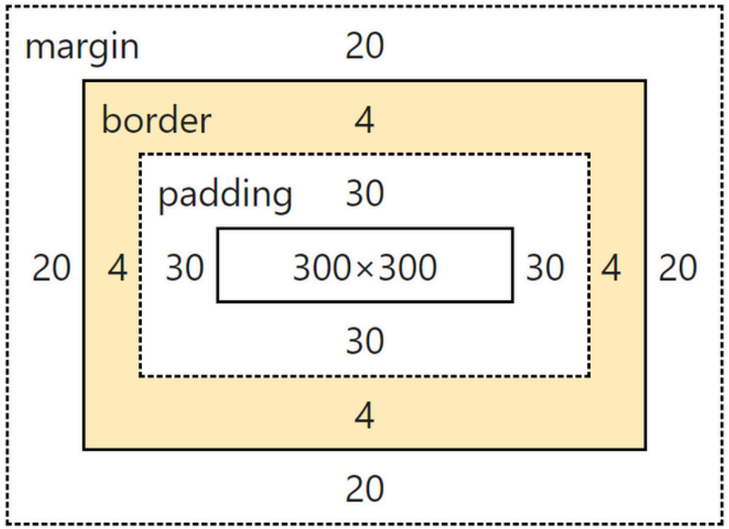


Shorthand property

```
padding: 10px; /* trbl */
padding: 10px 15%; /* tb-rl */
padding: 10px 15% 10em; /* t-rl-b */
padding: 10px 15% 10em 15vw; /* t-r-b-l */
```

MDN | Padding

overview
padding
Border
box-sizing
margin



Properties

```
border-width: 10px;
border-style: solid;
border-color: #ff9900;
border-radius: 6px;
```

Specific edge properties

```
border-top-width: 15px;
border-right-style: dotted;
border-bottom-color: #0099ff;
```

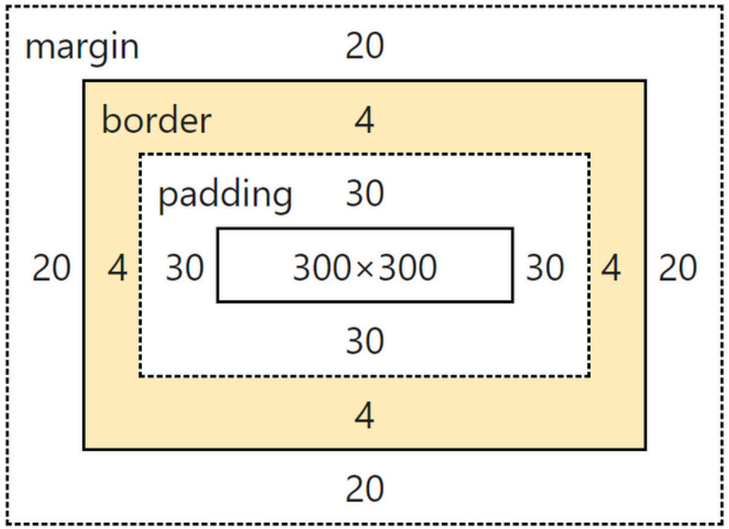
Specific corner property

```
border-top-left-radius: 50%;
```

Shorthand property

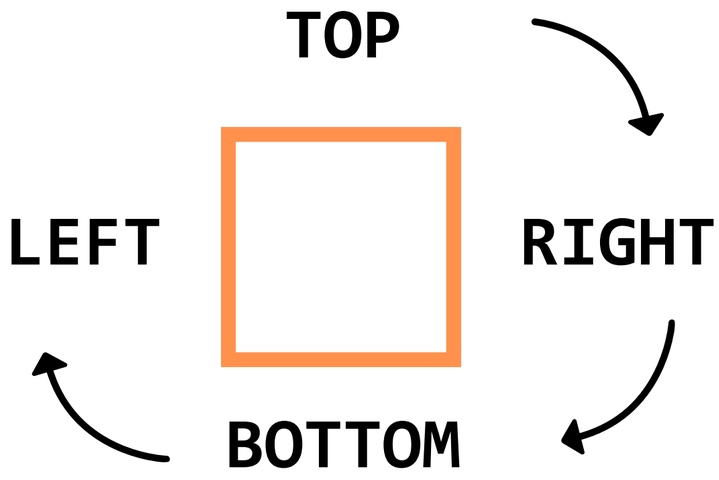
```
border: 10px solid #ff9900;
border-top: 2px dotted #0050a0;
```

overview
padding
Border
box-sizing
margin



Properties

```
border-width: 10px 15px 5px 20px;
border-style: solid dotted;
border-color: #ff9900 #ffffff #0099ff;
border-radius: 6px 2vw 30px 3em;
```



overview
padding
Border
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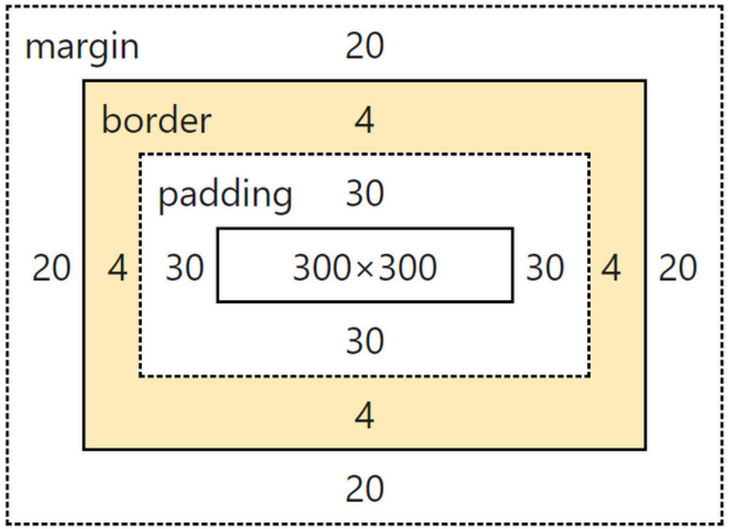
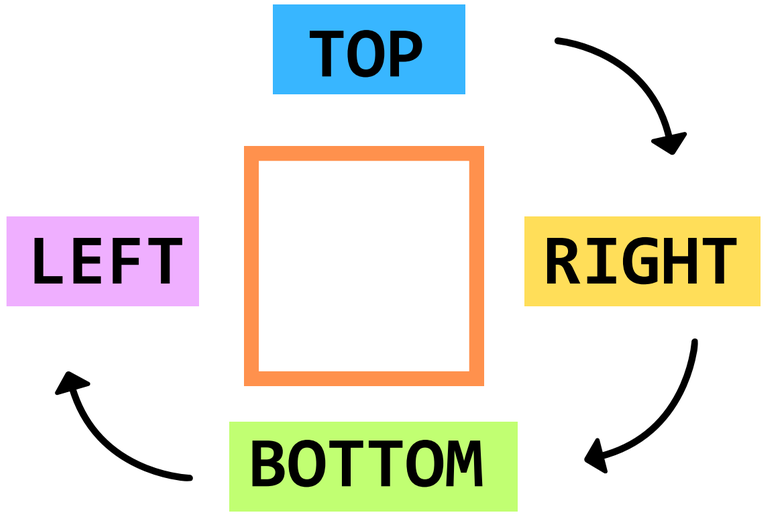
margin

Edges properties

```
border-width: 10px 15px 5px 20px;
border-style: solid dotted;
border-color: #ff9900 #ffffff #0099ff;
```





MDN | Border

overview
padding
Border
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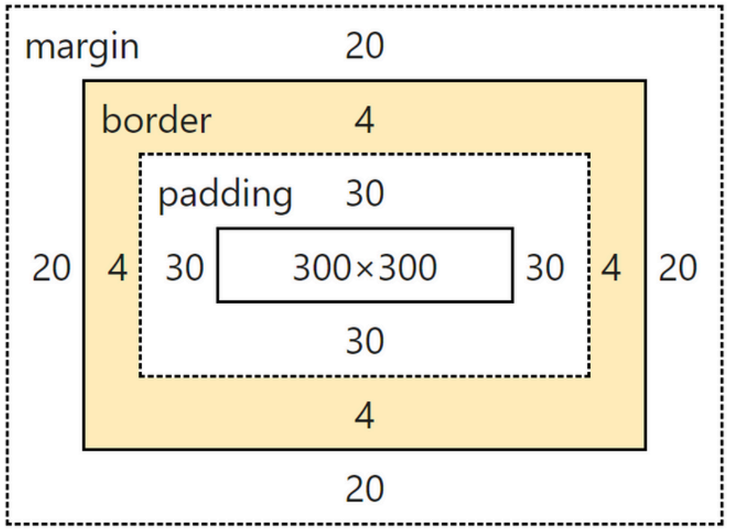
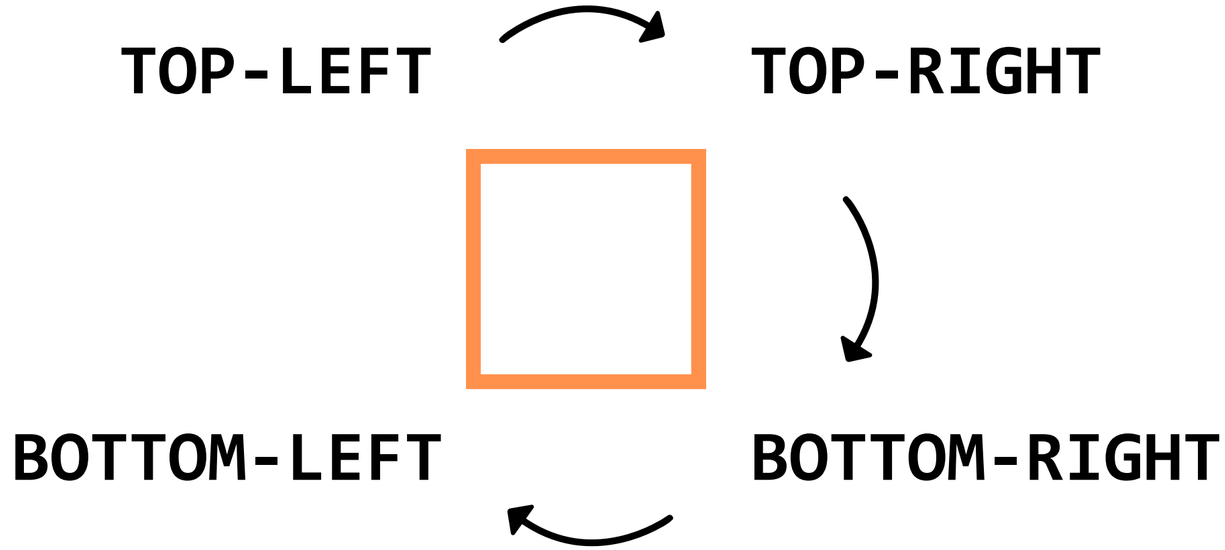
margin



Corners properties

```
border-top-left-radius: 6px;
border-top-right-radius: 2vw;
border-bottom-right-radius: 30px;
border-bottom-left-radius: 3em;
border-radius: 6px 2vw 30px 3em;
```

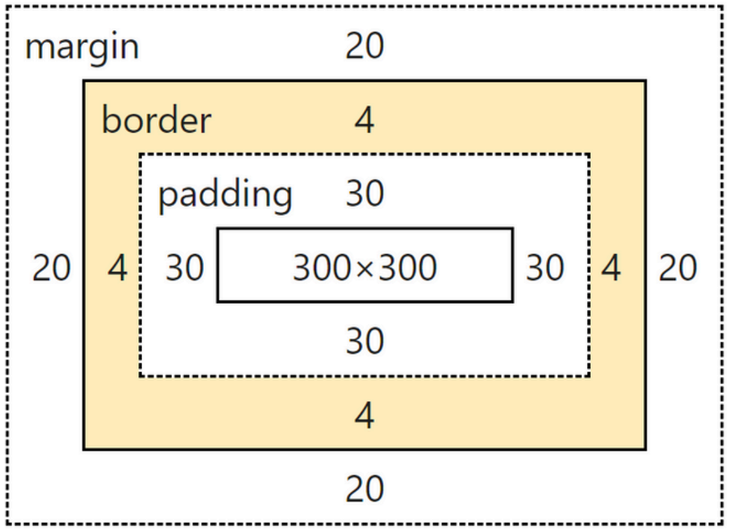


[MDN | Border-radius]

overview
padding
border
Box-sizing
margin

The box-sizing property

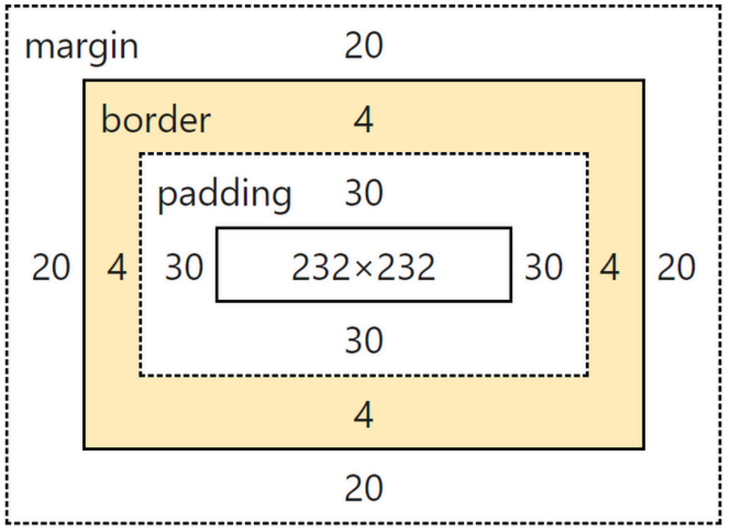
Defines whether the **width** and **height** of an element should **include** **padding** and **borders** or **not**



◀ `box-sizing: content-box;`

```
height: 300px;
width: 300px;
padding: 30px;
border: 4px solid black;
```

`box-sizing: border-box;` ▶



overview
padding
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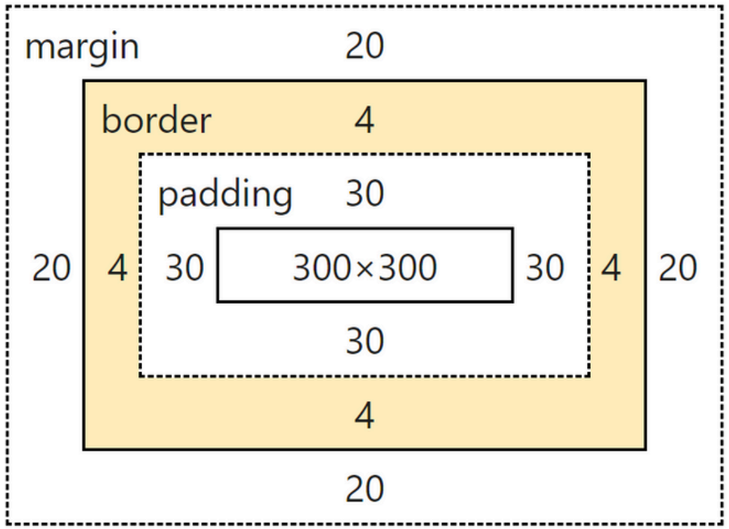

Setting box-sizing

```
* {
    box-sizing: border-box;
}
```

overview
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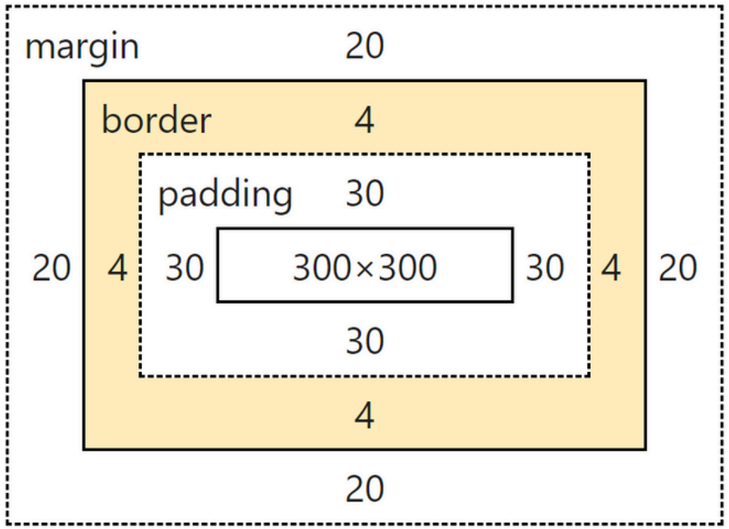

Universal Box Sizing

```
*, *::before, *::after {
    box-sizing: border-box;
}
```

Universal Box Sizing with Inheritance

```
html {
    box-sizing: border-box;
}

*, *::before, *::after {
    box-sizing: inherit;
}
```

MDN | Box-sizing

overview
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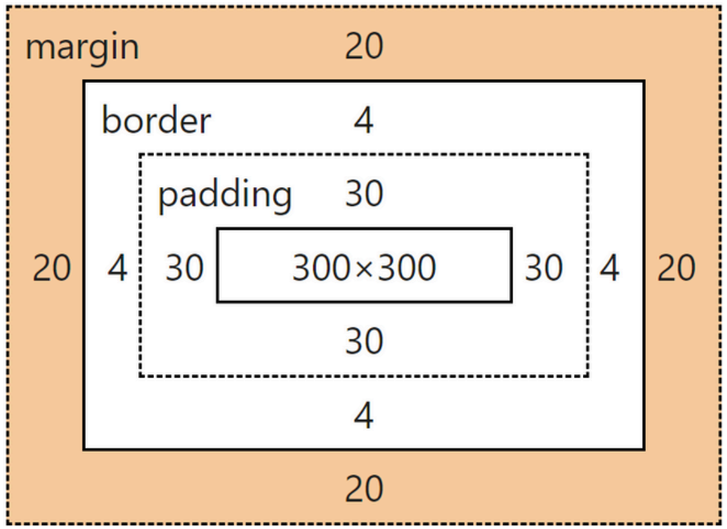
box-sizing

Margin



Properties

```
margin-top: 10px;
margin-right: 3em;
margin-bottom: 5%;
margin-left: 10vw;
```

Shorthand property

```
margin: 10px; /* trbl */
margin: 10px 15%; /* tb-rl */
margin: 10px 15% 10em; /* t-rl-b */
margin: 10px 15% 10em 15vw; /* t-r-b-l */
```

auto margins

```
margin: 10px auto; /* align center */
margin: 10px 10px 10px auto; /* align right */
```

let’s play!

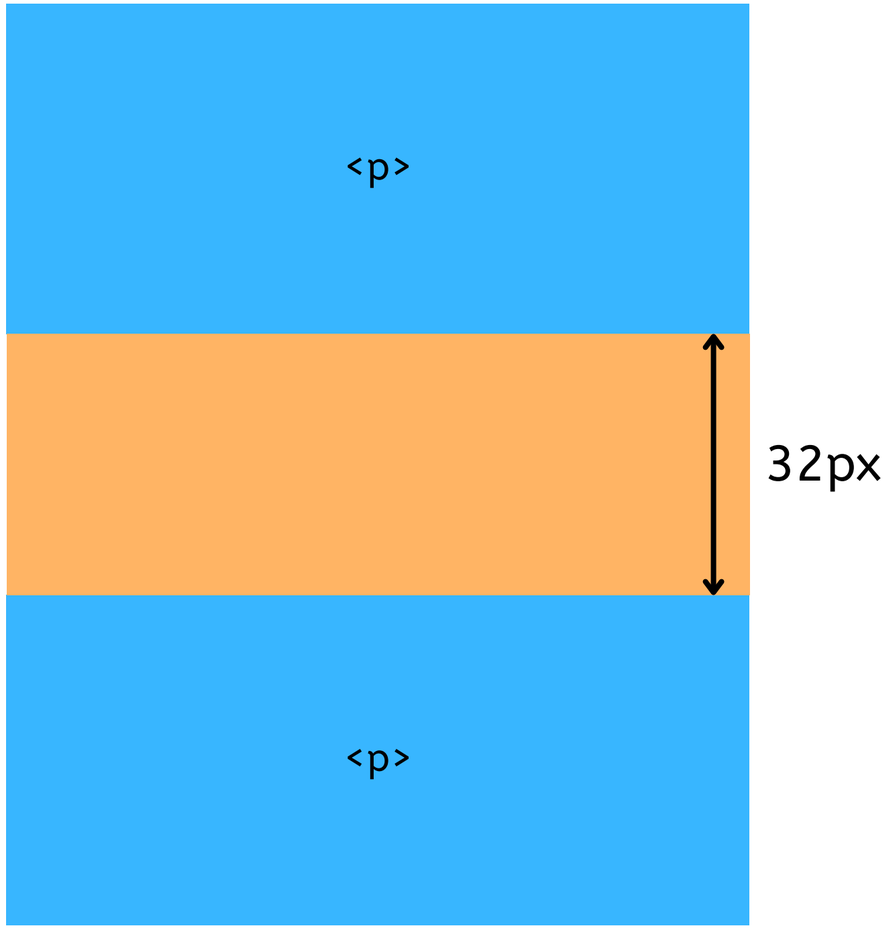
(again)

html

```
<p>Paragraph One</p>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: 32px;
  margin-bottom: 32px;
}
```

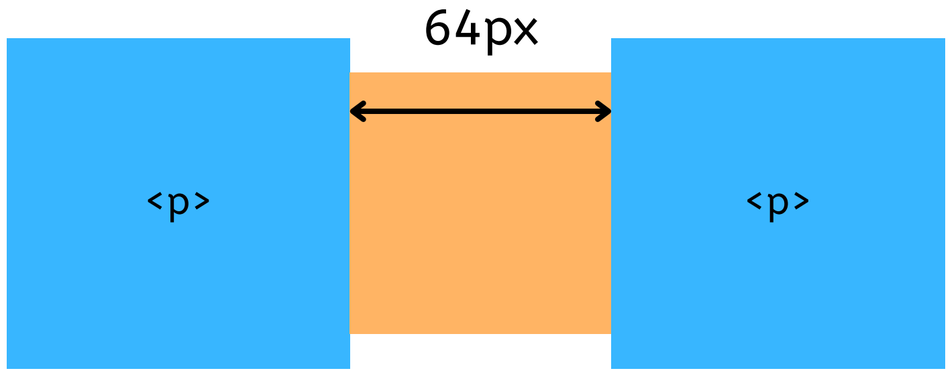


html

```
<p>Paragraph One</p>
<p>Paragraph Two</p>
```

css

```
p {
  margin-left: 32px;
  margin-right: 32px;
}
```

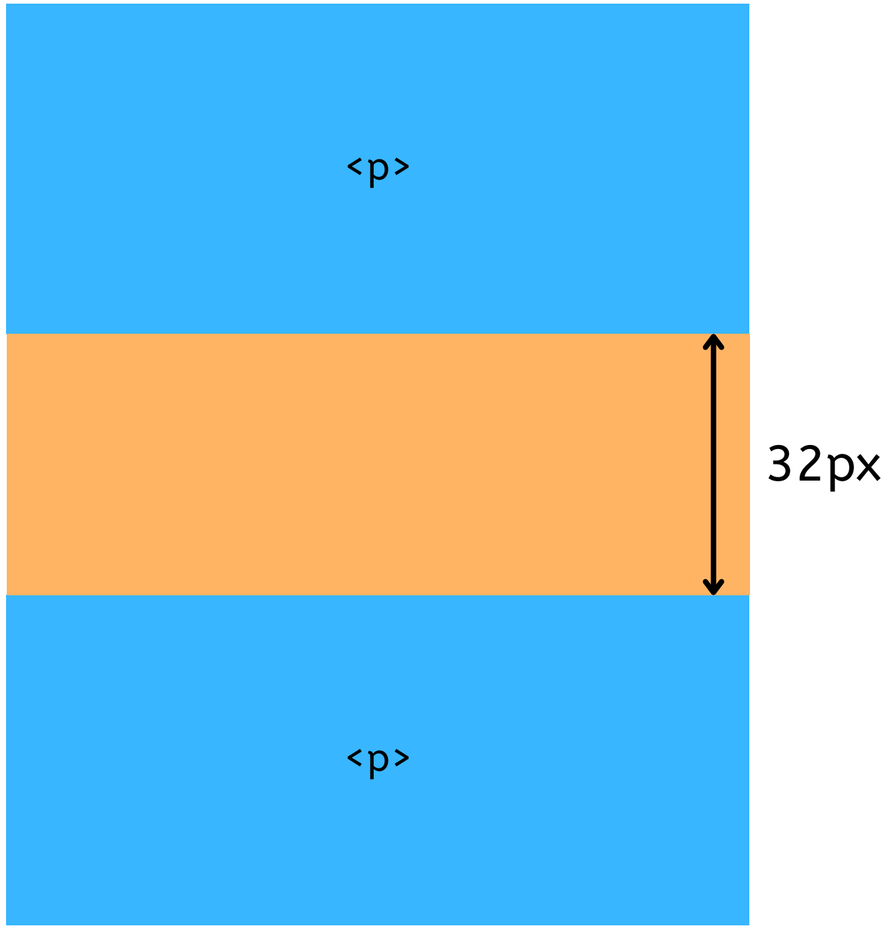


html

```
<p>Paragraph One</p>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: 24px;
  margin-bottom: 32px;
}
```

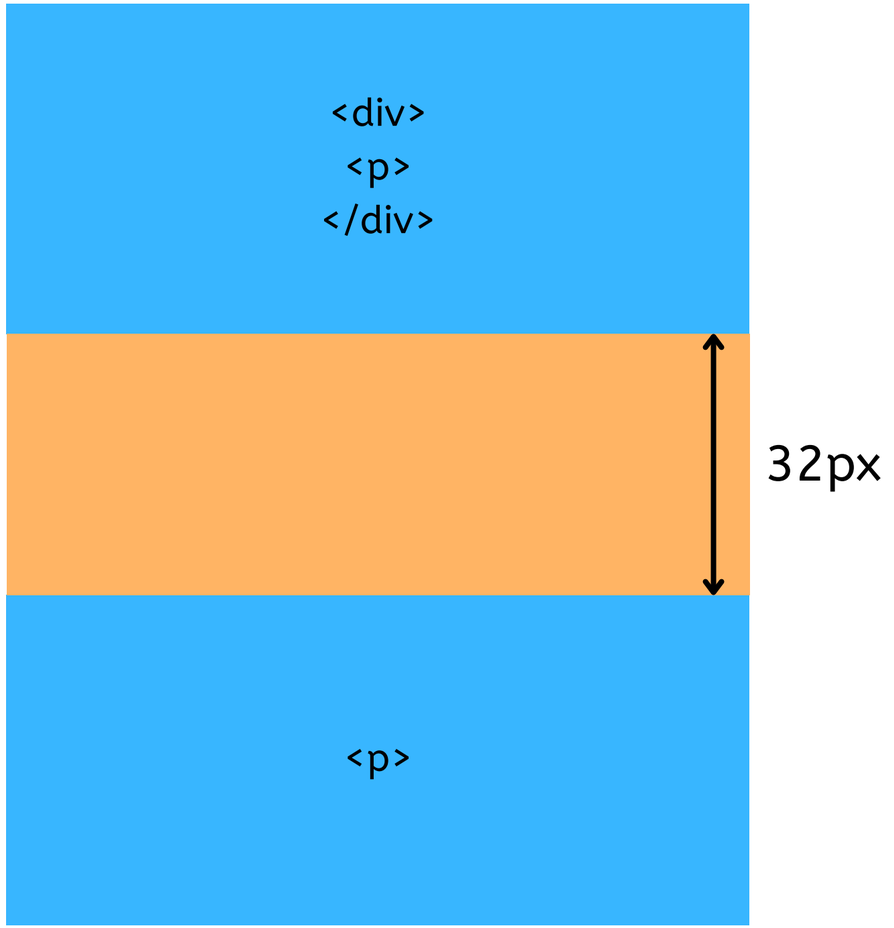


html

```
<div>
<p>Paragraph One</p>
</div>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: 32px;
  margin-bottom: 32px;
}
```

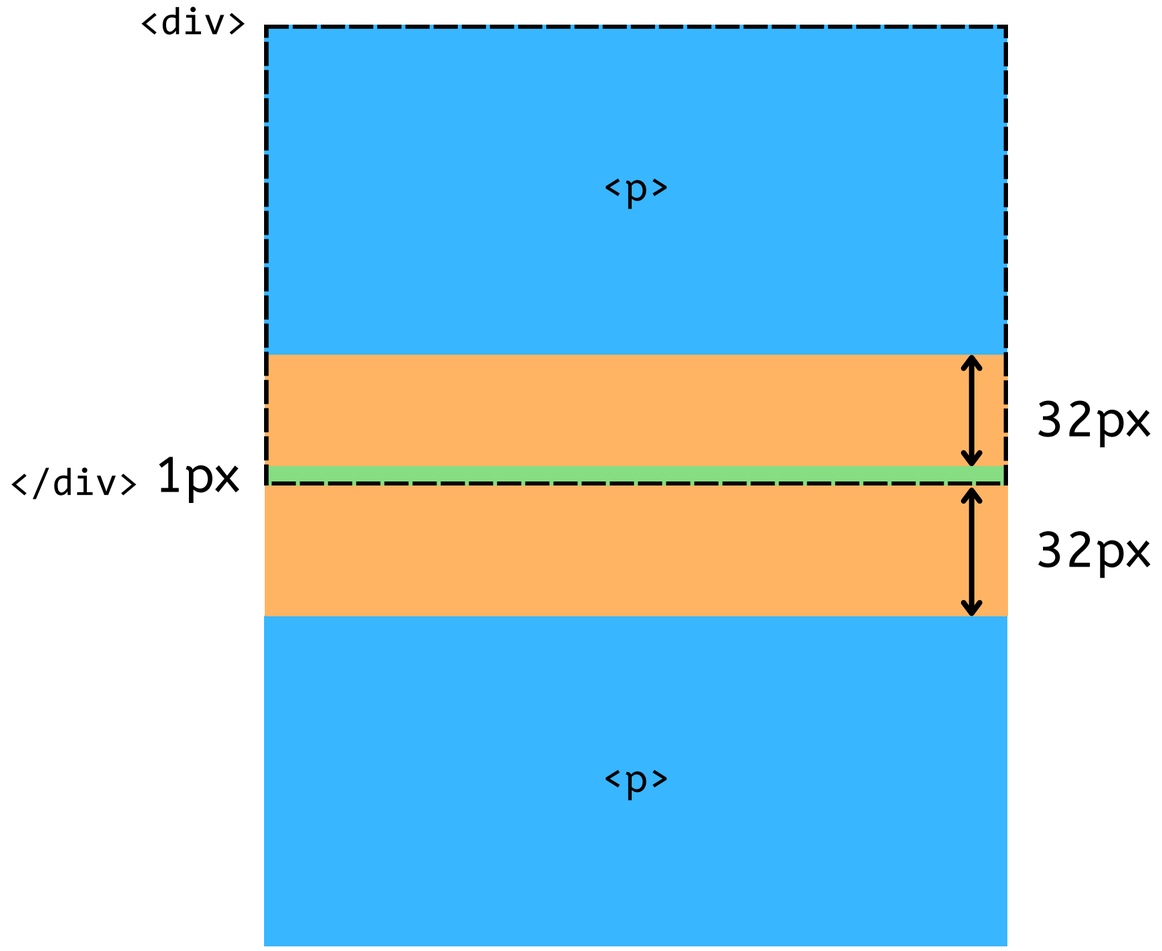


html

```
<div>
  <p>Paragraph One</p>
</div>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: 32px;
  margin-bottom: 32px;
}
div {
  padding-bottom: 1px;
}
```

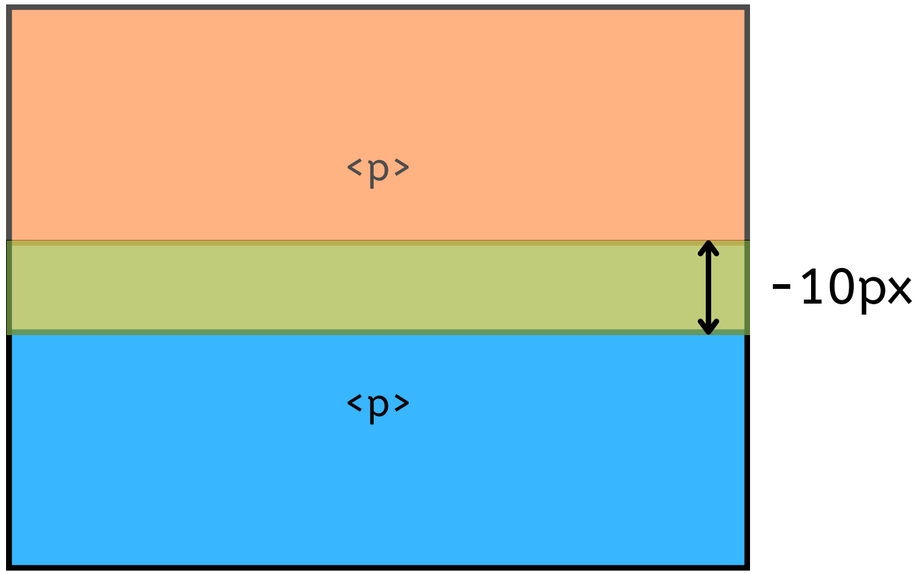


html

```
<p>Paragraph One</p>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: -8px;
  margin-bottom: -10px;
}
```

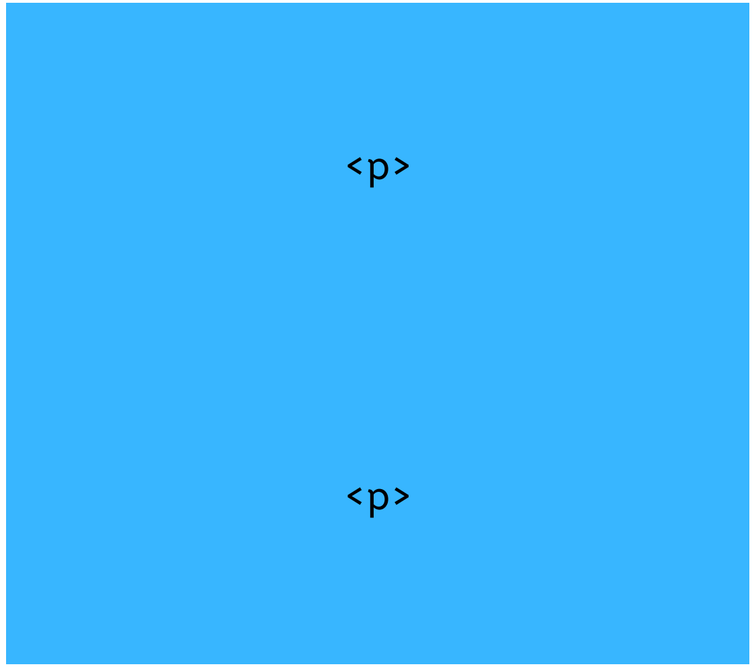


html

```
<p>Paragraph One</p>
<p>Paragraph Two</p>
```

css

```
p {
  margin-top: 10px;
  margin-bottom: -10px;
}
```



0px

Margin collapse: Let's wrap up

- Margin is meant to **increase the distance between siblings**.
- Margin will always try and increase distance between siblings, even if it means **transferring margin to the parent** element.
- Margins **only collapse when they're touching**. If there's any sort of gap or barrier between margins, they won't collapse.
- Between two margins with same sign, the **most significant** one gets chosen over the other.
- Opposite signs cancel each other.
- Adding a padding or border to the parent breaks collapsing
- Only vertical margins collapse!
- Margins of elements taken out-of-flow will never collapse (spoiler)

Margin-collapse

What we have learned
(hopefully)

Flow

Text-decoration

Text-align

Cursor

Max&Min

Calc

Box Model

Padding

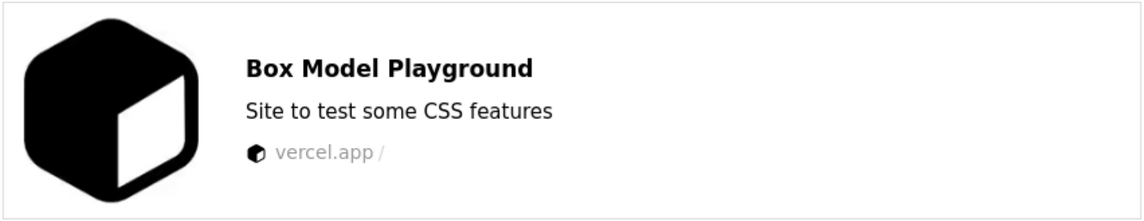
Border

Box-Sizing

Margin

Margin-collapse

Now what?
We made a playground!



box-model-playground.vercel.app