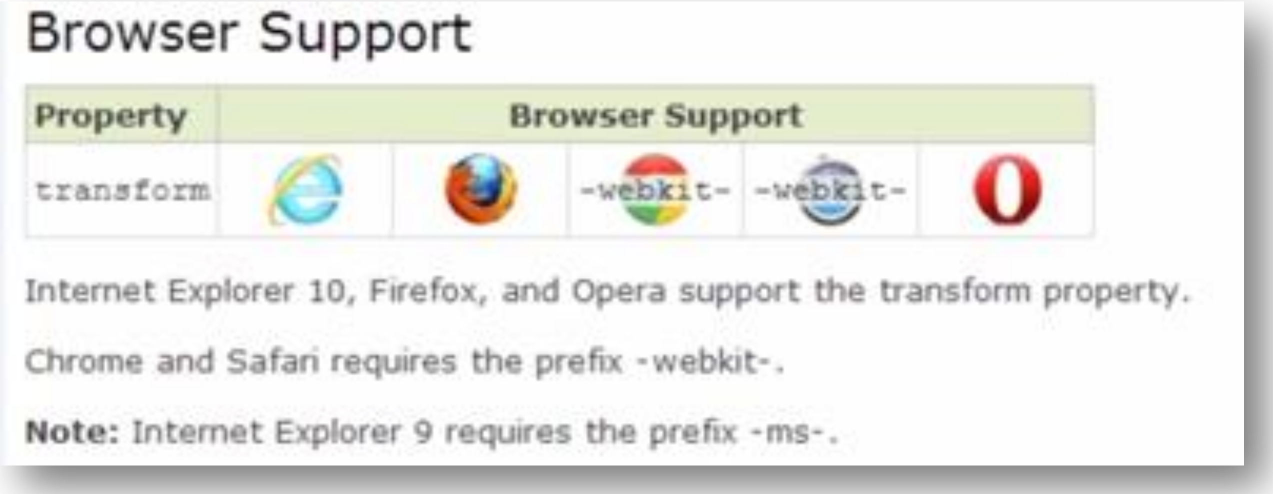
Umadevi Balakrishnan

2D Transforms
3D Transforms

2D Transforms



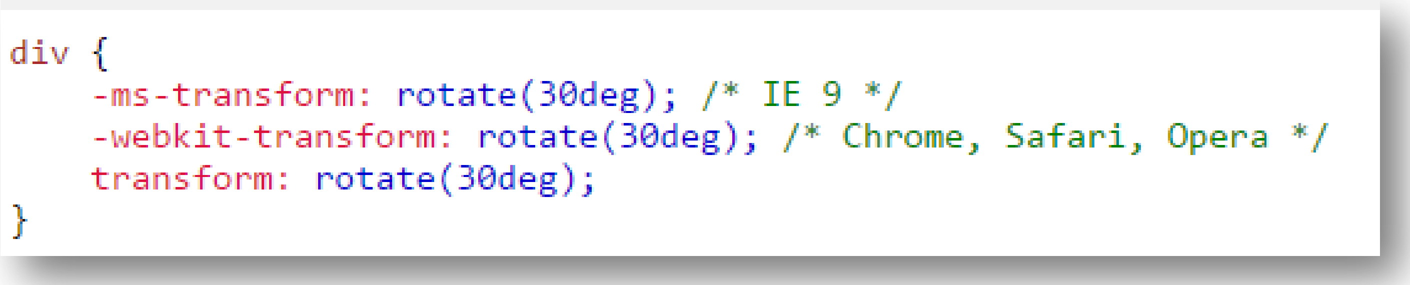
Browser Support

Property	Browser Support				
transform			-webkit-	-webkit-	

Internet Explorer 10, Firefox, and Opera support the transform property.

Chrome and Safari requires the prefix -webkit-.

Note: Internet Explorer 9 requires the prefix -ms-.



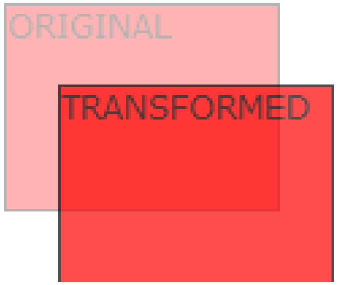
```
div {
    -ms-transform: rotate(30deg); /* IE 9 */
    -webkit-transform: rotate(30deg); /* Chrome, Safari, Opera */
    transform: rotate(30deg);
}
```

2D Transform Methods

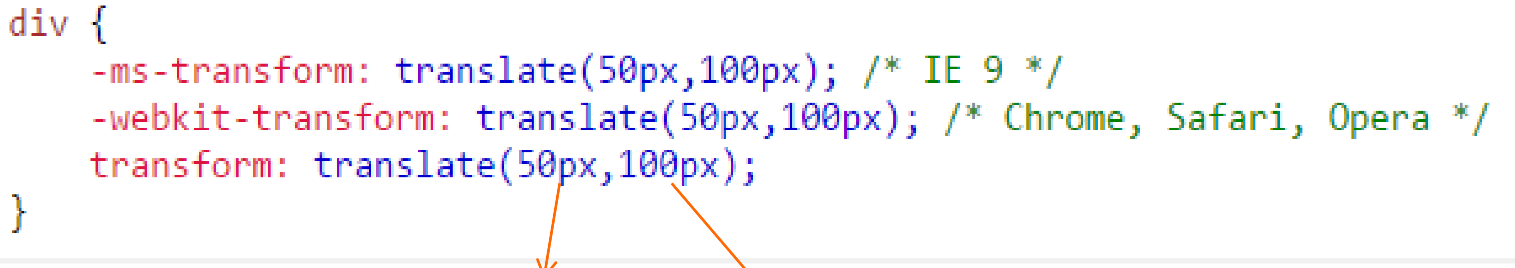
- translate()
- rotate()
- scale()
- skew()
- matrix()

TRANSLATE

- The element moves from its current position, depending on the parameters given for the left (X-axis) and the top (Y-axis) position



Sample



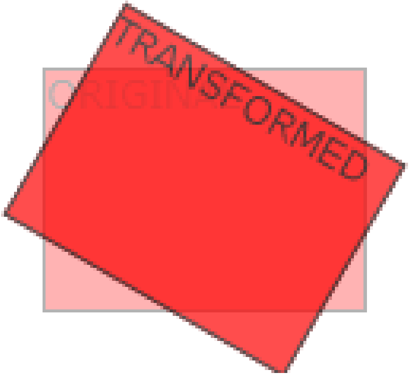
```
div {
    -ms-transform: translate(50px,100px); /* IE 9 */
    -webkit-transform: translate(50px,100px); /* Chrome, Safari, Opera */
    transform: translate(50px,100px);
}
```

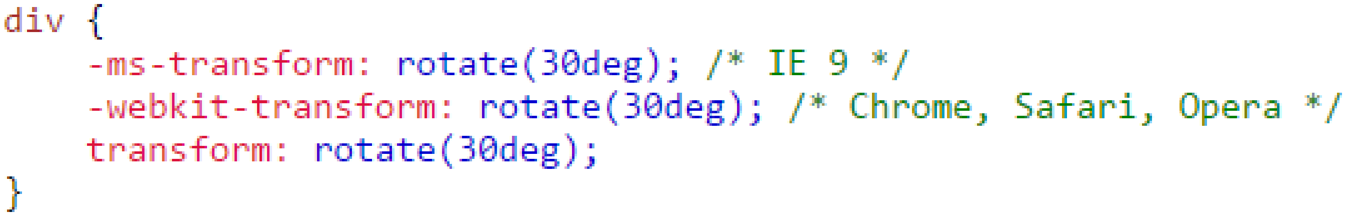
From left

From top

ROTATE

- The element rotates clockwise at a given degree.
- Negative values are allowed and rotates the element counter-clockwise.

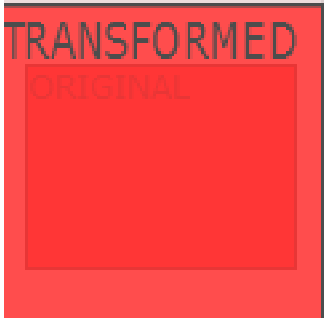


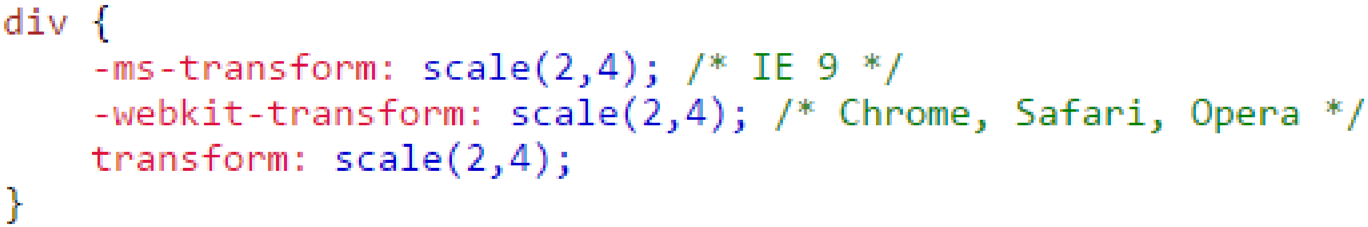


```
div {
    -ms-transform: rotate(30deg); /* IE 9 */
    -webkit-transform: rotate(30deg); /* Chrome, Safari, Opera */
    transform: rotate(30deg);
}
```

SCALE

- Increases or decreases the size, depending on the parameters given for the width (X-axis) and the height (Y-axis)

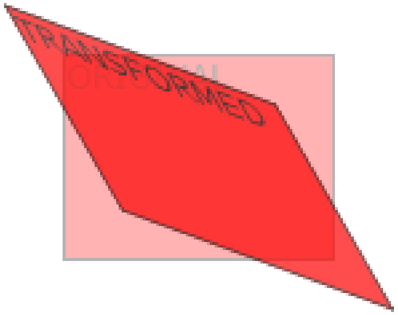


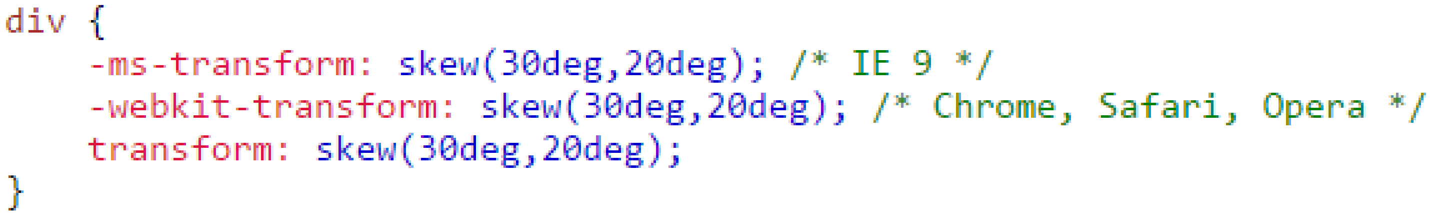


```
div {
    -ms-transform: scale(2,4); /* IE 9 */
    -webkit-transform: scale(2,4); /* Chrome, Safari, Opera */
    transform: scale(2,4);
}
```

SKEW

- The element turns in a given angle, depending on the parameters given for the horizontal (X-axis) and the vertical (Y-axis) lines
- skewX(degree) , skewY(degree)

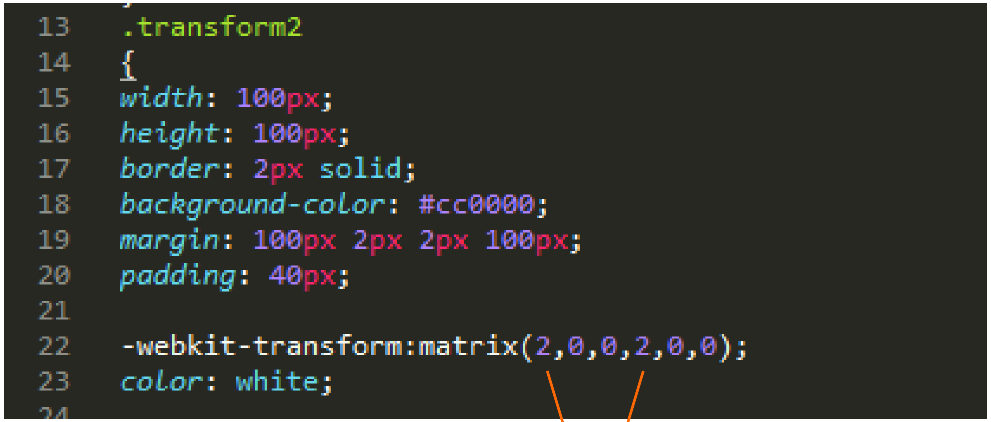




```
div {
    -ms-transform: skew(30deg,20deg); /* IE 9 */
    -webkit-transform: skew(30deg,20deg); /* Chrome, Safari, Opera */
    transform: skew(30deg,20deg);
}
```

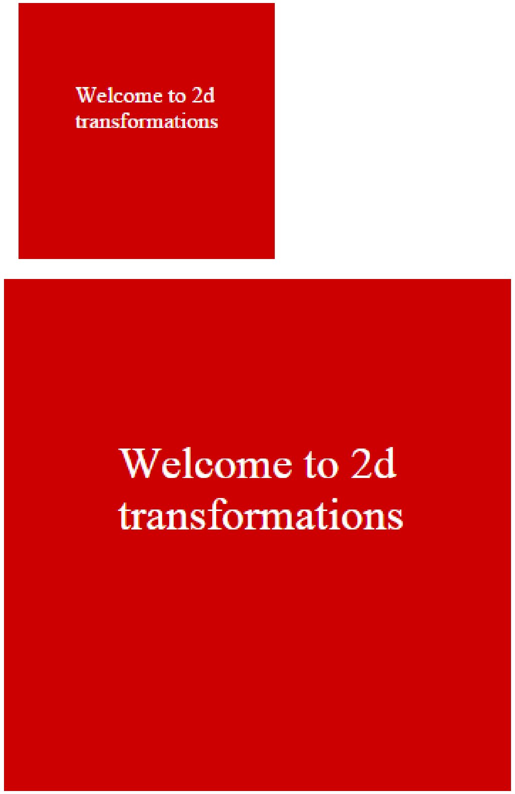
MATRIX() METHOD - SCALE

- combines all of the 2D transform methods into one
  - -webkit-transform: matrix(1,0,0,1,0,0);



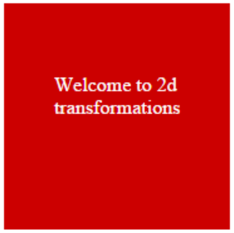
```
.transform2
{
width: 100px;
height: 100px;
border: 2px solid;
background-color: #cc0000;
margin: 100px 2px 2px 100px;
padding: 40px;

-webkit-transform:matrix(2,0,0,2,0,0);
color: white;
```

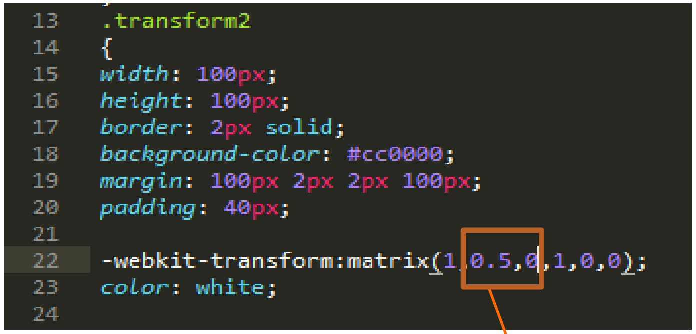
Scale



MATRIX() METHOD –SKEW

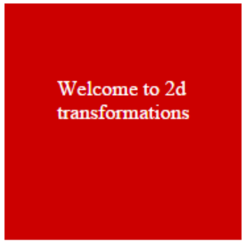
- -webkit-transform: matrix(0,0.5,0,0,0,0);

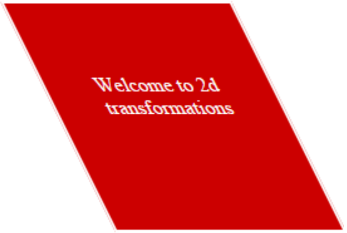


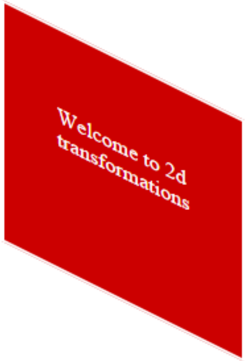


```
.transform2
{
width: 100px;
height: 100px;
border: 2px solid;
background-color: #cc0000;
margin: 100px 2px 2px 100px;
padding: 40px;

-webkit-transform:matrix(1,0.5,0,1,0,0);
color: white;
```

Skew

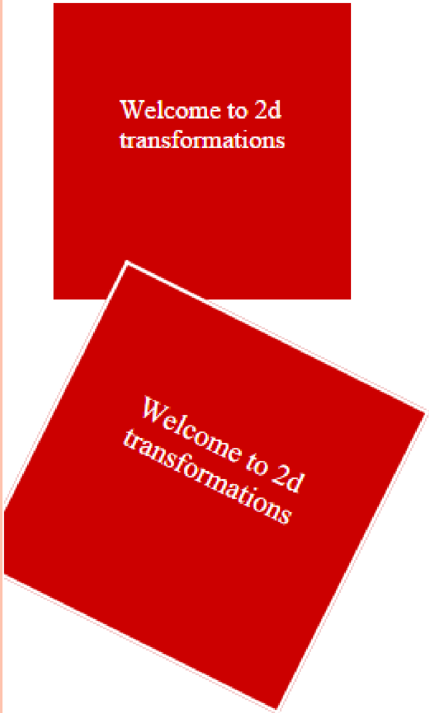


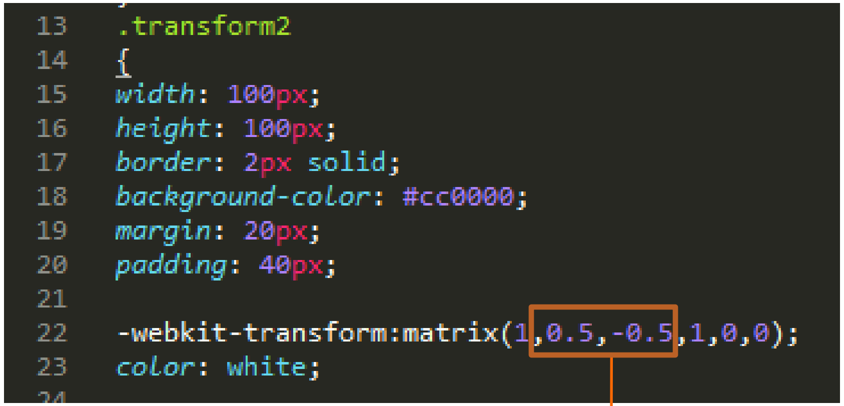




MATRIX() METHOD - ROTATE

- -webkit-transform: matrix(0,0.5,-0.5,0,0,0);





```
.transform2
{
width: 100px;
height: 100px;
border: 2px solid;
background-color: #cc0000;
margin: 20px;
padding: 40px;

-webkit-transform:matrix(1,0.5,-0.5,1,0,0);
color: white;
```

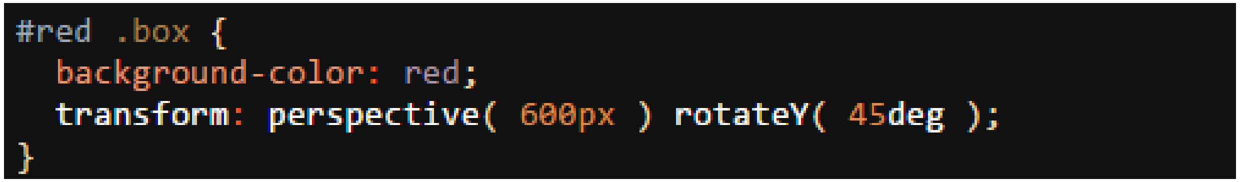
scale

3D Transforms

PERSPECTIVE

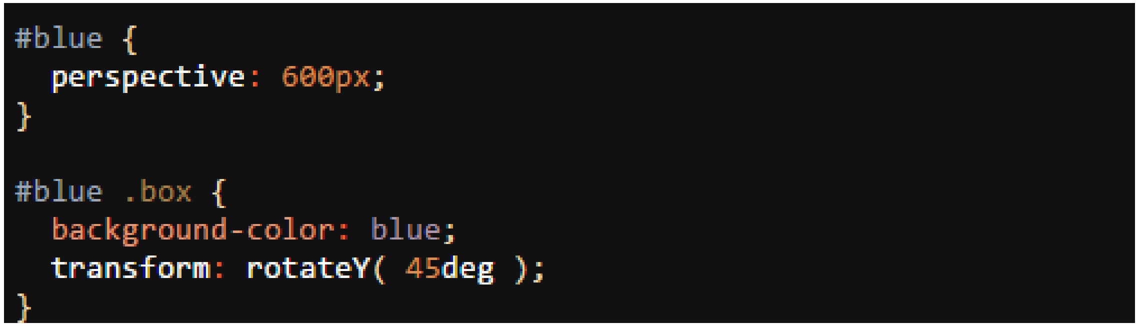
- To activate 3-D space, an element needs perspective.
- This can be applied in two ways:
  - using the transform property, with the perspective as a functional notation:
    - -webkit-transform: perspective(600);

      or
  - using the perspective property:
    - -webkit-perspective: 600;



```
#red .box {
  background-color: red;
  transform: perspective( 600px ) rotateY( 45deg );
}
```

- The functional notation is convenient for directly applying a 3-D transform on a single element



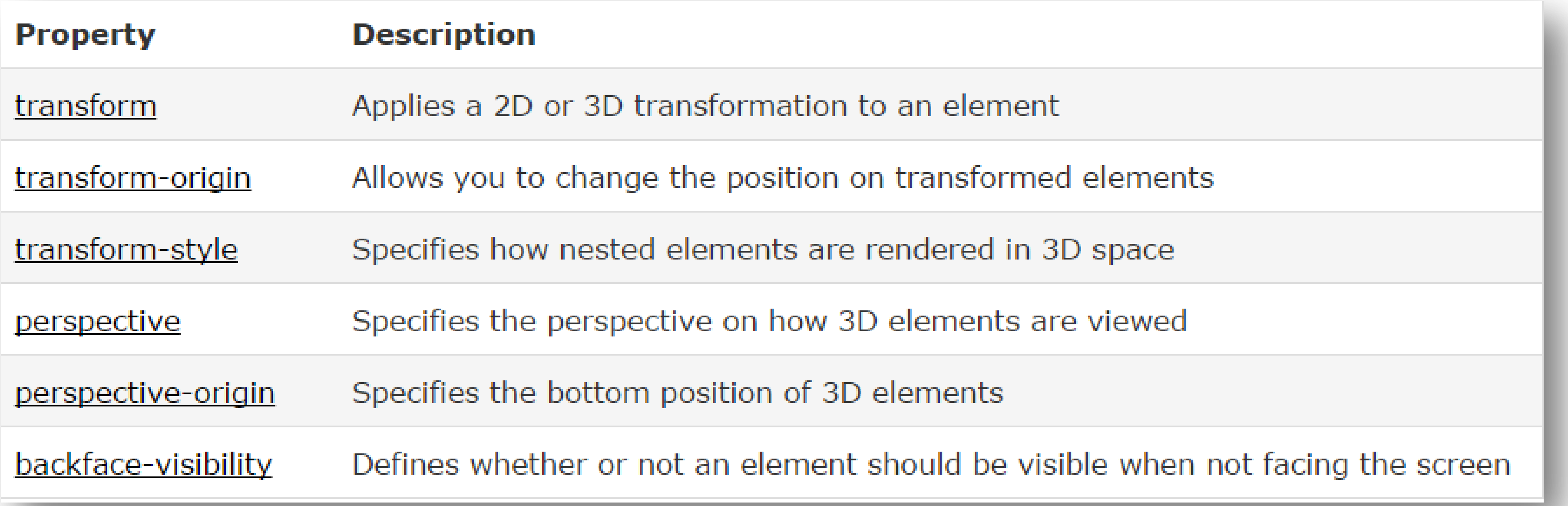
```
#blue {
  perspective: 600px;
}

#blue .box {
  background-color: blue;
  transform: rotateY( 45deg );
}
```

- Using the perspective property on a parent element , each child shares the same 3-D space.

3-D TRANSFORM FUNCTIONS

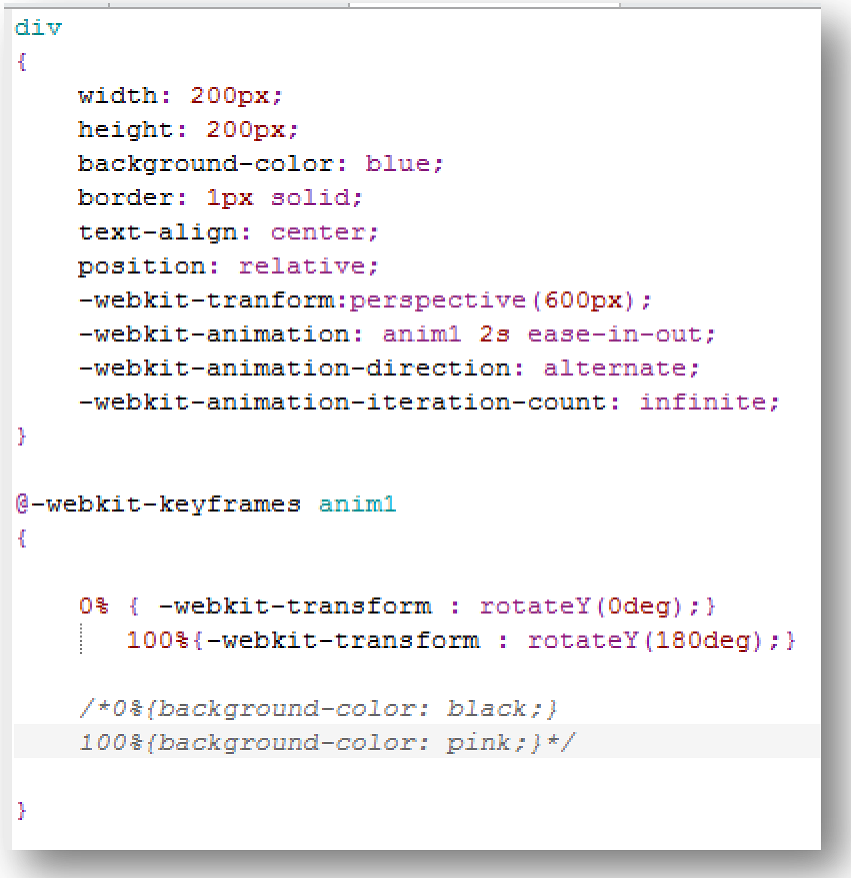
- rotateX(angle)
- rotateY(angle)
- rotateZ(angle)
- translateZ(tz)
- scaleZ(sz)
    - Positive values position the element closer to the viewer, negative values further away.
- shorthand transform functions that require values for all three dimensions:
    - translate3d(tx,ty,tz)
    - scale3d(sx,sy,sz)
    - rotate3d(rx,ry,rz,angle)

3D Transform Properties



Property	Description
transform	Applies a 2D or 3D transformation to an element
transform-origin	Allows you to change the position on transformed elements
transform-style	Specifies how nested elements are rendered in 3D space
perspective	Specifies the perspective on how 3D elements are viewed
perspective-origin	Specifies the bottom position of 3D elements
backface-visibility	Defines whether or not an element should be visible when not facing the screen

3D Rotate Sample



```
div
{
    width: 200px;
    height: 200px;
    background-color: blue;
    border: 1px solid;
    text-align: center;
    position: relative;
    -webkit-tranform:perspective(600px);
    -webkit-animation: anim1 2s ease-in-out;
    -webkit-animation-direction: alternate;
    -webkit-animation-iteration-count: infinite;
}

@-webkit-keyframes anim1
{

    0% { -webkit-transform : rotateY(0deg);}
       100%{-webkit-transform : rotateY(180deg);}

    /*0%{background-color: black;}
    100%{background-color: pink;}*/

}
```

Sample