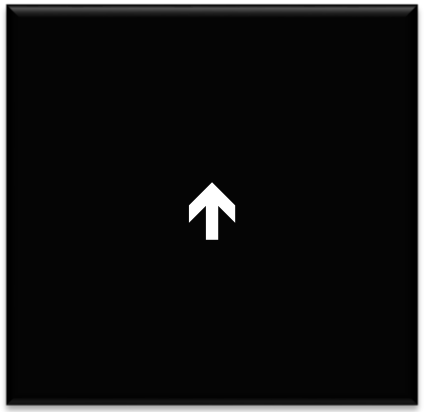
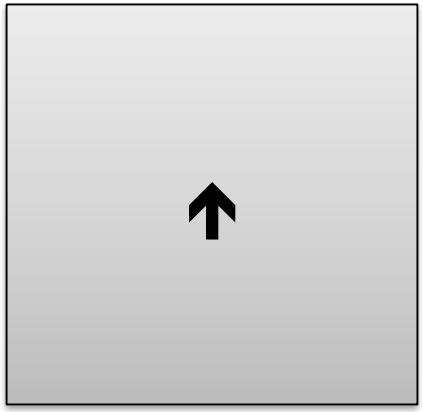
transforms

transform: translate(x, y)

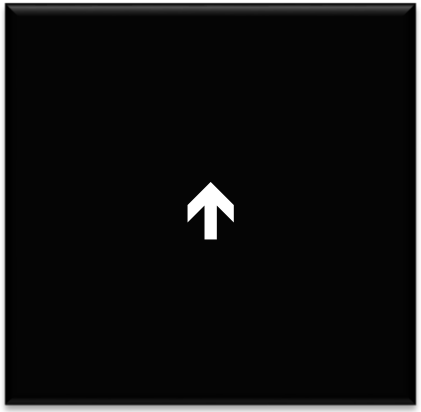


translate(0,0)

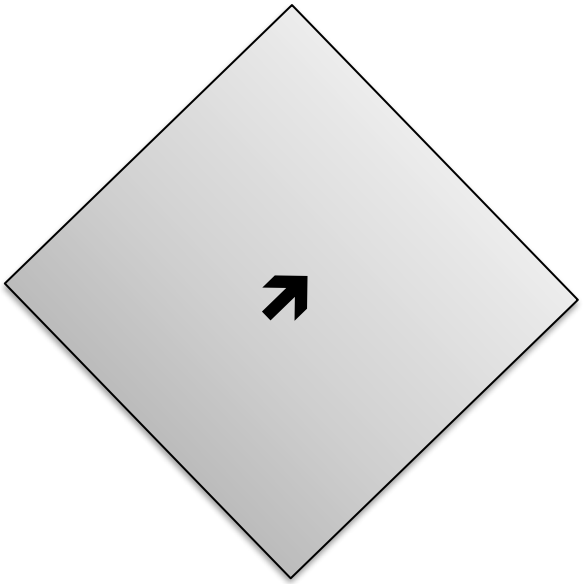


translate(200px, 100px)

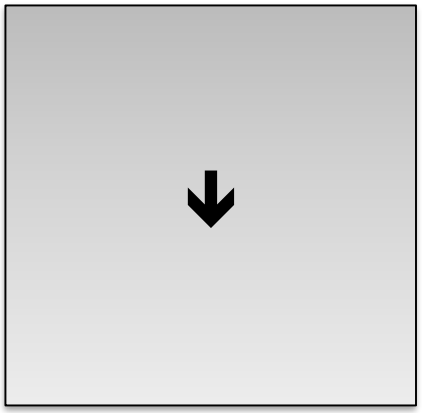
transform: rotate(x)



rotate(0deg)

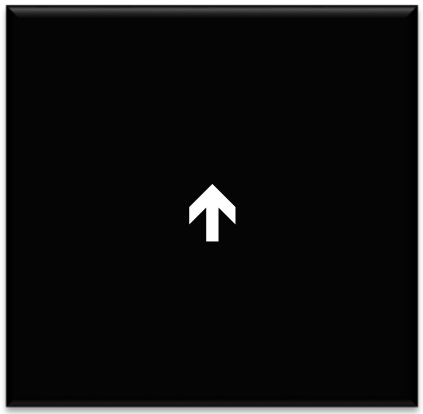


rotate(45deg)

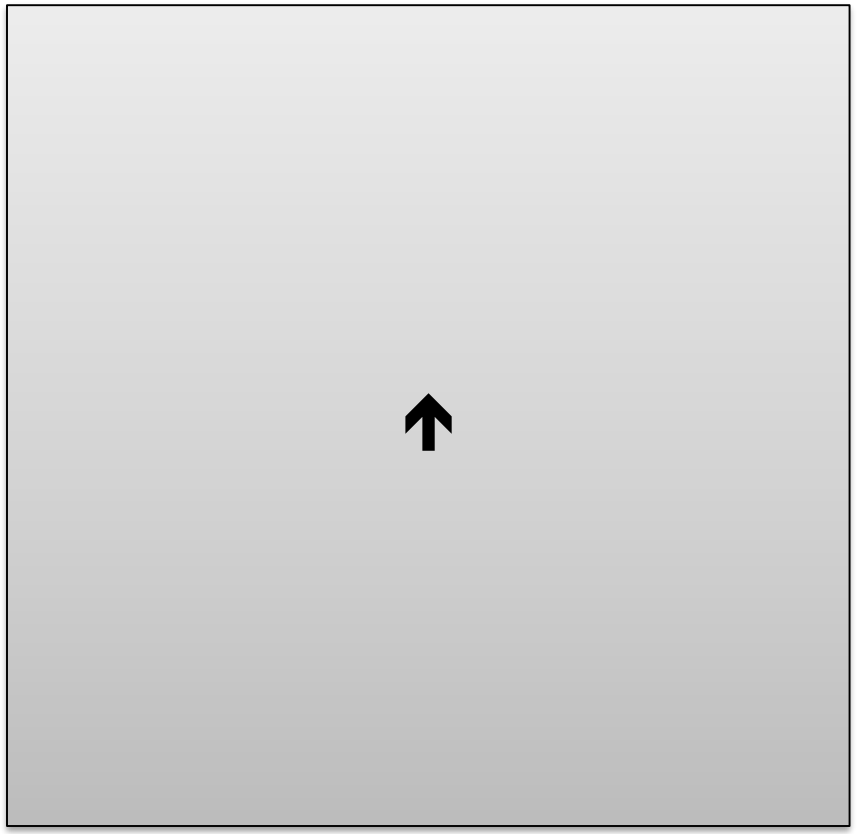


rotate(180deg)

transform: scale(x)

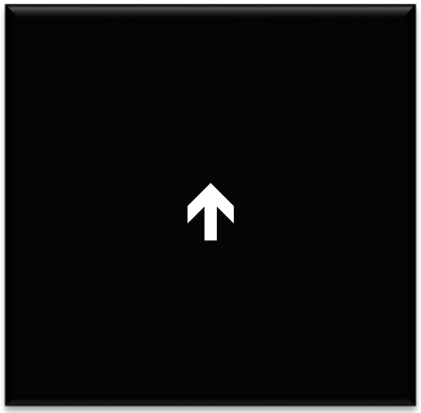


scale(1)



scale(2)

transform: skew(x, y)

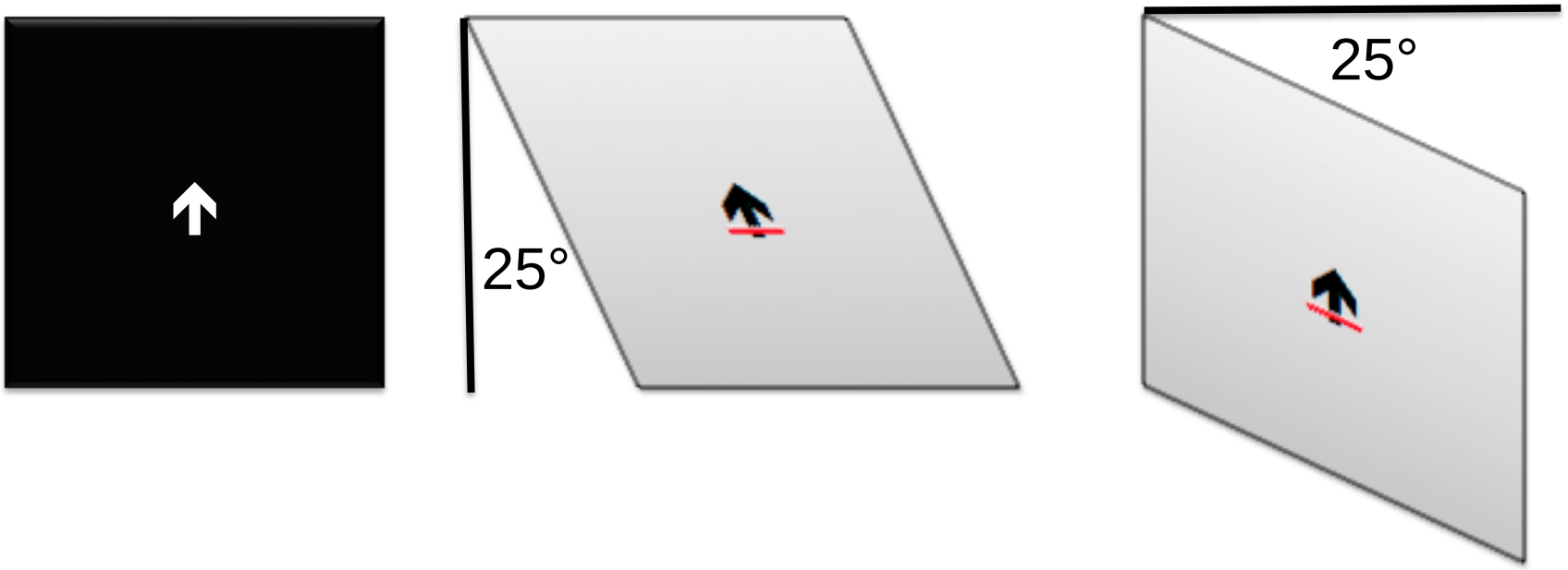


skew(0deg, 0deg)

skewX(25deg)

skewY(25deg)

transform: skew(x, y)

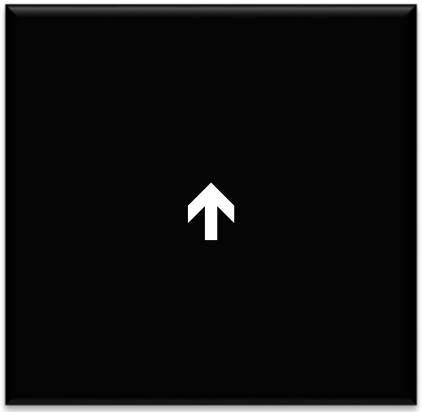


skew(0deg, 0deg)

skewX(25deg)

skewY(25deg)

transform: skew(x, y)

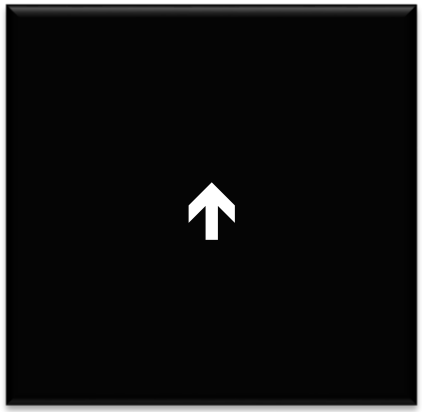


skew(0deg, 0deg)

skew(25deg, 25deg)


DEMO

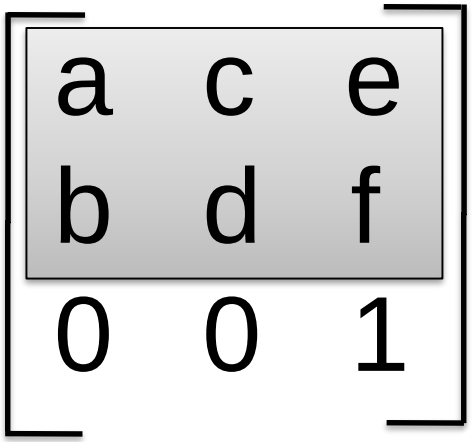
transform: matrix(a,b,c,d,e,f)



???

transform: matrix(a,b,c,d,e,f)

matrix(a,b,c,d,e,f) =



3x3 matrix

transform: matrix(a,b,c,d,e,f)

$$\begin{bmatrix} sx & 0 & 0 \\ 0 & sy & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

scale

$$\begin{bmatrix} 1 & 0 & tx \\ 0 & 1 & ty \\ 0 & 0 & 1 \end{bmatrix}$$

translate

$$\begin{bmatrix} \cos(a) & -\sin(a) & 0 \\ \sin(a) & \cos(a) & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

rotate

$$\begin{bmatrix} 1 & \tan(a) & 0 \\ \tan(a) & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

skew

transform: matrix(a,b,c,d,e,f)

$$\begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

flip horizontal

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

flip vertical

$$\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

flip both

Browser Support

```
-moz-transform: rotate(45deg);        // FF3.5+
-webkit-transform: rotate(45deg);     // Saf3.1+, Chrome
-o-transform: rotate(45deg);          // Opera 10.5
-ms-transform: rotate(45deg);         // IE9
transform: rotate(45deg);

filter: progid:DXImageTransform.Microsoft.Matrix(
    M11=0.7071067811865476,
    M12=-0.7071067811865476,
    M21=0.7071067811865476,
    M22=0.7071067811865476,
sizingMethod='auto expand');          // IE6 – IE9
```

3D Transformations

3D functions Examples

- rotate3d
- translate3d
- skew3d
- scale3d
- matrix3d

http://www.keithclark.co.uk/labs/css-fps/old/

http://demo.marcofolio.net/3d_animation_css3/

https://www.clicktorelease.com/code/css3dclouds/