perspective(n) → define perspective view for 3D transformed element

matrix3d(n,n,n,n,n,n,n,n,n,n,n,n,n,n,n,n) → define 3d transformation using 4×4 matrix of 16 values

translate3d(x,y,z) → defines 3d translation

rotate3d(x,y,z,angle) → defines 3d rotation

3D transforms : property → transform

1) rotateX() → rotates an element around its x axis at a given degree.

2) rotateY() → rotates an element around its y axis at a given degree

3) rotateZ() → rotates an element around its z axis at a given degree

Eg:

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      div.rot1{
        background-color: □charcoal;
        border: 1px solid □black;
        transform: rotateX(150deg);
      }
      div.rot2{
        background-color: □charcoal;
        border: 1px solid □black;
        transform: rotateY(150deg);
      }
```

```
div.rot3 {
    background-color: chartreuse;
    border: 1px solid black;
    transform: rotateZ(150deg);
  }
</style>
</head>
<body>
  <div class="rot1"> Smokey-X </div>
  <br>
  <div class="rot2"> Smokey-Y </div>
  <br>
  <div class="rot3"> Smokey-Z </div>
</body>
</html>
```

→ **Transform Properties :-**

① → Lower value → result in intensive 3D effect than a higher value

Perspective → used to give a 3D positioned element some perspective.
→ define how far the object is away from user.

Property	Chrome	Edge	Firefox	Safari	Opera
transform-origin (2 value syntax)	36.0 4.0 -webkit-	10.0 9.0 -ms-	16.0 3.5 -moz-	9.0 3.2 -webkit-	23.0 15.0 -webkit- 10.5 -o-
" (3 value syntax)	36.0 12.0 -webkit-	10.0	16.0 10.0 -moz-	9.0 4.0 -webkit-	23.0 15.0 -webkit-

→ Eg of working of rotateX() & rotateY() → (Copy code after reading rotation)

Using also ② transform-origin → Allow you to change position on transformed elements.

③ transform-style → Specifies how nested elements are rendered in 3D space.

④ perspective-origin → Specifies bottom position of 3D elements.

⑤ backface-visibility → define whether or not element should be visible when not facing the screen.

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      .full-box{
        /* This is for background-image*/
        background-color: black;
      }
      /* This is for background image of the inner box */
      .box1{
          margin-left: auto;
          margin-right: auto;
          display: block;
          width: 600px;
          border: 1px solid black;
          background-image: url('../IMAGES_FOR_CSS/Image002.jpeg');
          border-radius: 50px;
      }
      /* This is for the box contains that consists of input types */
      .box2{
          border: 5px solid black;
          margin: auto;
          width: 200px;
          padding: 30px;
          background-color: black;
          color: white;
          border-radius: 40px;
      }
      #div1{
          position: relative;
          height: 100px;
          width: 200px;
          margin-left: auto;
          margin-right: auto;
          display: block;
          padding: 10px;
          border: 1px solid
          background-image: url('../IMAGES_FOR_CSS/Image001.jpeg');
      }
      #div2{
          padding: 50px;
          position: absolute;
          border: 1px solid black;
          background-color: red;
          transform: rotate(45deg);
      } transform-origin: 20% 40%;
```

```
#para1 {
    border: 2px solid Oblack;
    margin: auto;
    width: 350px;
    }
.center-vert {
    margin-left: auto;
    margin-right: auto;
    display: block;
    border: 1px solid Oblack;
    text-align: center;
    }
</style>
<script>
    function changeRot(value)
    {
    document.getElementById('div2').style.transform
                    = "rotate(" + value + "deg)";

    document.getElementById('perp').innerHTML = value + "deg";
    }
function changeOrg()
{
    var x = document.getElementById('ox').value;
    var y = document.getElementById('oy').value;
    document.getElementById('origin').innerHTML =
        x + "%" + y + "%";
    }
</script>
</head>
<body>
    <div class = "full-box">
        <div class = "box1">
            <p id = "para1" style = "text-align: center">
                Rotate the Box and
                try changing its x axis and y axis: </p>
    <div id = "div1">
        <div id = "div2"> HELLO </div>
    </div>
    <br>
<div class = "box2">
```

Rotate:

```
<input type="range" min="-360" max="360" value="45"
        onchange="changeRot(this.value)" />
transform: rotate
  (<span id="pmp"> 45deg </span>);
  <hr>
  <p> Transform-origin: </p>
  <hr>
  1: transform: rotatex
    <input type="range" min=-100 max=200 value=20
           onchange="changeOrg()" id="ox">
  <br><br>

 2: transform: rotatey
 <input type="range" min="-100" max=200 value=40
        onchange="changeOrg() id="oy">
 <br><br>

 <div class="center-result">
    <The values of x and y axis are:
    <!-- in Rotate are: -->
    <br>
   <span id="origin">   20% 40%. </span>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

O/P