7 Further Graphics (pb355)

(a) List at least five different visual cues which our brains use to infer depth. Give a one-sentence explanation of each.  

(b) Consider the following signed distance field function:

```c
#define min3(a, b, c) min(a, min(b, c))
#define max3(a, b, c) max(a, max(b, c))

float getSdf(vec3 p) {
    vec3 q = vec3(abs(p.x), abs(p.y), abs(p.z));
    return min3(
        max3(q.x / 3.0, q.y, q.z),
        max3(q.x, q.y / 3.0, q.z),
        max3(q.x, q.y, q.z / 3.0)) - 1.0;
}
```

(i) Draw the surface, including its dimensions  

(ii) What is the Gaussian curvature of this surface at (3, 0, 0)?  

(iii) What is the Gaussian curvature of this surface at (1, 1, 1)?  

(iv) What is the total angle deficit of this surface?  

(v) What is the angle deficit of this surface at (1, 1, 1)?  

(vi) What is the normal of this surface at (1, 1, 1)?  

(vii) By inserting a single line of code, how would you modify `getSdf()` so that the figure is repeated infinitely along the X axis, with each repetition exactly touching the previous instance?