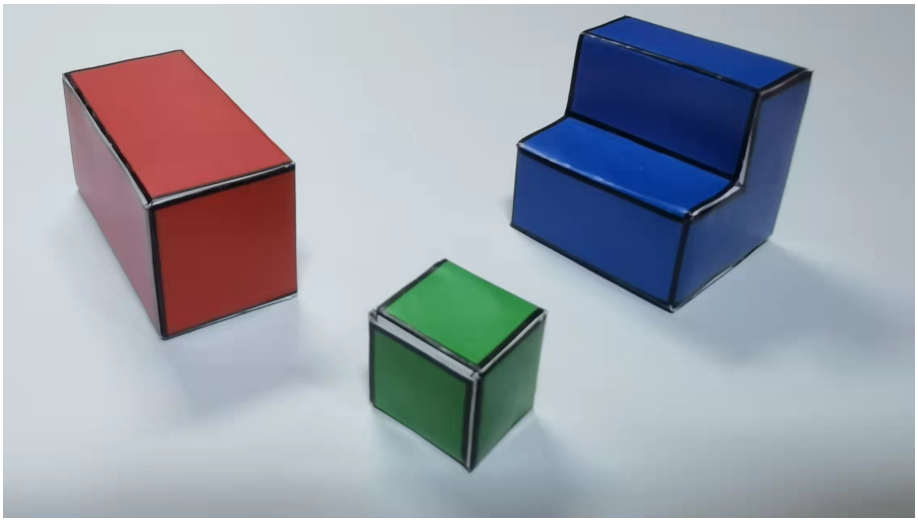
问题包-1

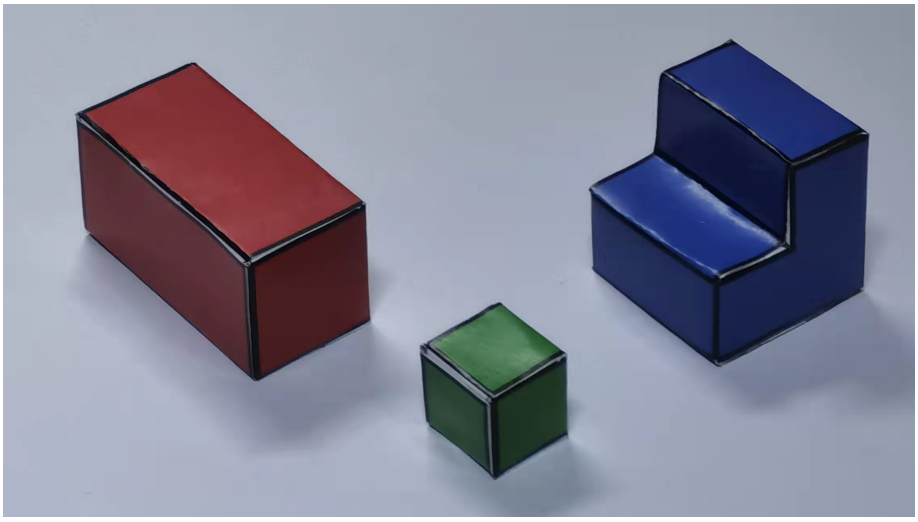
问题2

通过自制*simple world*，拍摄得如下图片

- 透视投影



- 正交投影

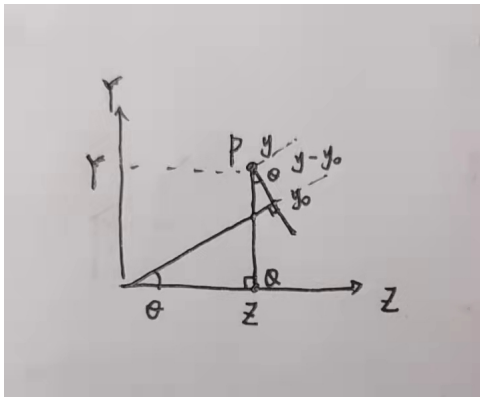


问题3

由于X轴与x轴平行，故x轴只有缩放变换（缩放因子为α）

$$x - x_0 = \alpha X \Rightarrow x = \alpha X + x_0$$

对于y轴，如图，考虑线段PQ



$$\alpha Y = \alpha Z \tan\theta + \frac{y - y_0}{\cos\theta} \Rightarrow y = \alpha(\cos\theta\, Y - \sin\theta\, Z) + y_0$$

问题4

$$\partial Z/\partial y = -1/\sin\theta \text{（对问题3中证明的第二个方程求偏导可得）}$$

$$\partial Z/\partial \mathbf{t} = \nabla Z \times \mathbf{t} = -n_y\, \partial Z/\partial x + n_x\, \partial Z/\partial y = 0,\ \mathbf{t} = (-n_y, n_x)$$

$$\partial^2 Z/\partial x^2 = 0$$

$$\partial^2 Z/\partial y^2 = 0$$

$$\partial^2 Z/\partial x \partial y = 0$$

问题5

- 代码补全

```
% 166
Aij(:,:,c) = [-1 0 1; -2 0 2; -1 0 1]*-dy+[-1 -2 -1; 0 0 0; 1 2 1]*dx;
% 180
Aij(:,:,c) = 0.1*[0 -1 0; 0 2 0; 0 -1 0];
```

- 运行结果