$A = (0, 0, 0) \quad B = (2, 0, 0) \quad C = (0, \frac{1}{\sqrt{2}}, 0)$

$$M = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{2} & -\frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} & \frac{\sqrt{2}}{2} & -\frac{1}{4} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

I used python to do the transformation and other multiplications

$$A' = \begin{pmatrix} 0 \\ 0 \\ -\frac{1}{4} \\ 1 \end{pmatrix} \quad B' = \begin{pmatrix} 2 \\ 0 \\ -\frac{1}{4} \\ 1 \end{pmatrix} \quad C' = \begin{pmatrix} 0 \\ \frac{1}{2} \\ \frac{1}{4} \\ 1 \end{pmatrix}$$

$$\text{Area} = \frac{1}{2} \left| x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y) \right|$$

```
mport sympy as sp

# Define the matrix M and the vertices A, B, C

M = sp.Matrix([

    [1, 0, 0, 0],

    [0, sp.sqrt(2)/2, -sp.sqrt(2)/2, 0],

    [0, sp.sqrt(2)/2, sp.sqrt(2)/2, -0.25],

    [0, 0, 0, 1]

])
```

```
A = sp.Matrix([[0], [0], [0], [1]])

B = sp.Matrix([[2], [0], [0], [1]])

C = sp.Matrix([[0], [1/sp.sqrt(2)], [0], [1]])


# Apply the transformation matrix to the vertices

A_transformed = M * A

B_transformed = M * B

C_transformed = M * C

 A_transformed, B_transformed, C_transformed
```

A′′=(0,0) B′′=(2,0) C′′=(0,1/2)

$$\text{Area} = \frac{1}{2}\left| x_1(y_2-y_3) + x_2(y_3-y_1) + x_3(y_1-y_2) \right|$$

$$\text{Area} = 0.5$$

Assuming normalised view from [1,-1], total area 4

$$\frac{0.5}{4} \times 100 = 12.5\%$$