АКСОНОМЕТРИЯ
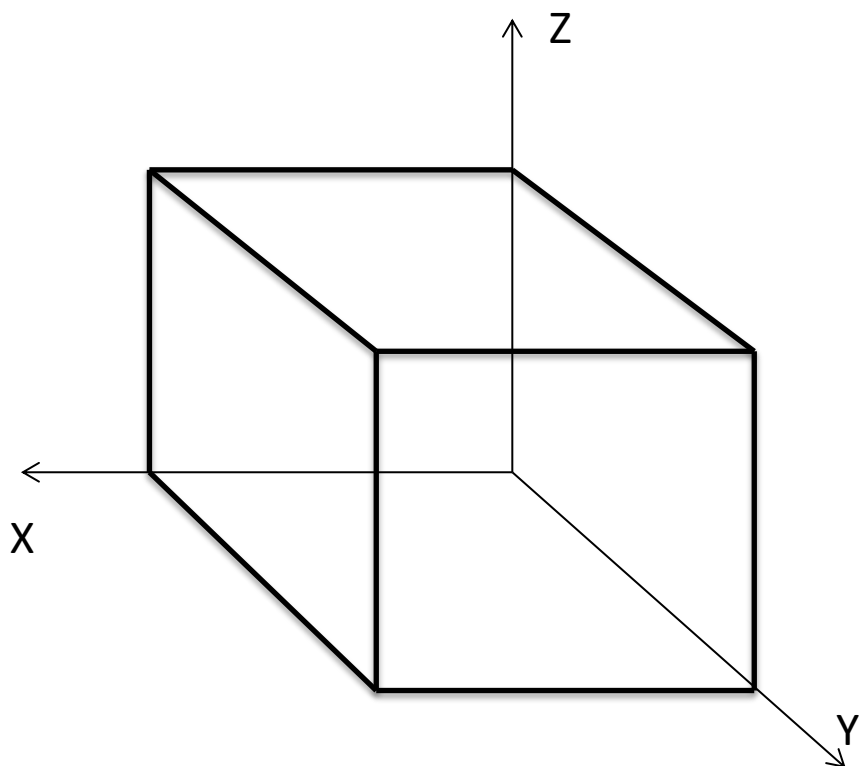
АНАЛИТИЧНО ЗАДАВАНЕ

ВИДОВЕ АКСОНОМЕТРИИ

КАВАЛИЕРНА ПЕРСПЕКТИВА

Изометрия: $p = q = r$
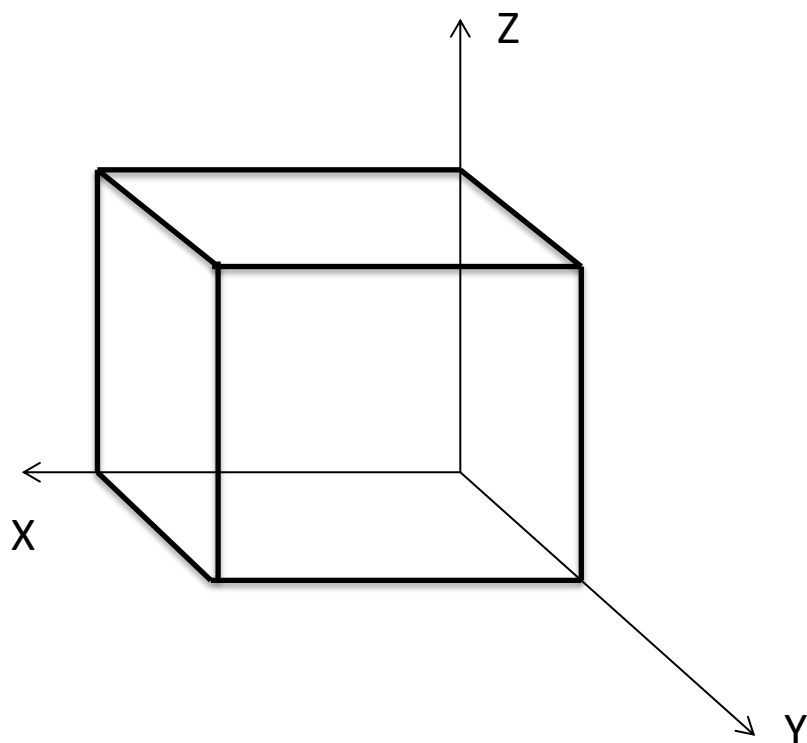
$\sphericalangle(Ox, Oz) = 90°$;
$\sphericalangle(Ox, Oy) = 135°$
$\sphericalangle(Oy, Oz) = 135°$

$$C = \begin{pmatrix} 1 & -\dfrac{\sqrt{2}}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & -\dfrac{\sqrt{2}}{2} & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

КАБИНЕТНА ПРОЕКЦИЯ
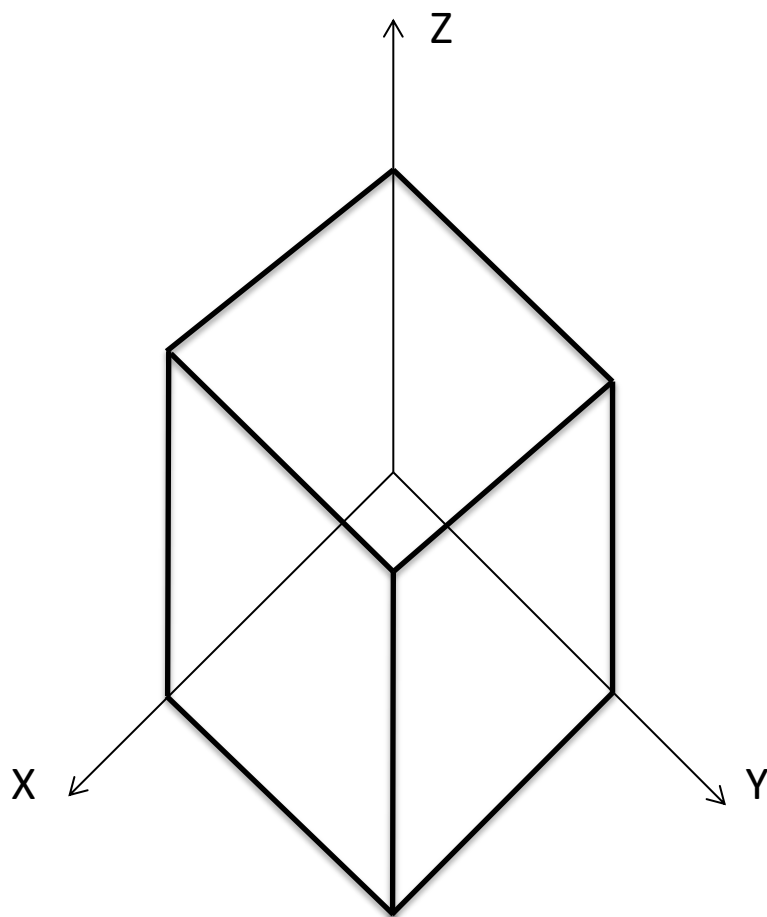
Диметрия: $p = 2q = r$

$\sphericalangle(Ox, Oz) = 90°;$
$\sphericalangle(Ox, Oy) = 135°$
$\sphericalangle(Oy, Oz) = 135°$

$$C = \begin{pmatrix} 1 & -\dfrac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & -\dfrac{\sqrt{2}}{4} & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

ВОЕННА ПЕРСПЕКТИВА

Изометрия: $p = q = r$
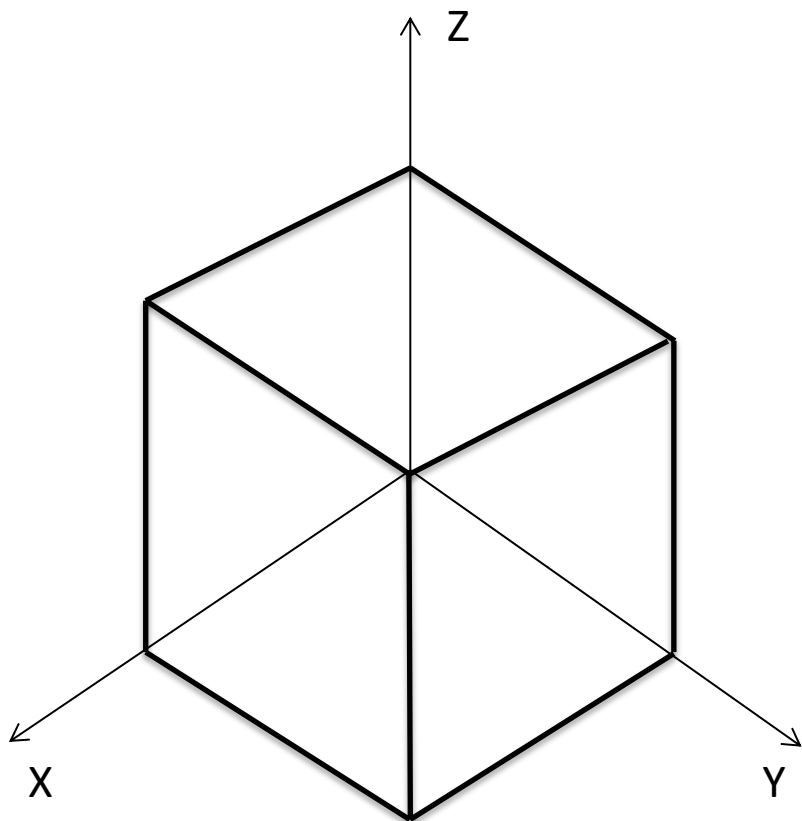
$\sphericalangle(Ox, Oy) = 90°;$
$\sphericalangle(Ox, Oz) = 135°$
$\sphericalangle(Oy, Oz) = 135°$

$$C = \begin{pmatrix} 1 & 0 & -\dfrac{\sqrt{2}}{2} & 0 \\ 0 & 1 & -\dfrac{\sqrt{2}}{2} & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

ПРАВОЪГЪЛНА ИЗОМЕТРИЯ

Изометрия: $p = q = r$

$\sphericalangle(Ox, Oy) = 120°$
$\sphericalangle(Ox, Oz) = 120°$
$\sphericalangle(Oy, Oz) = 120°$

$$C = \begin{pmatrix} -\dfrac{\sqrt{2}}{2} & \dfrac{\sqrt{2}}{2} & 0 & 0 \\ -\dfrac{\sqrt{6}}{6} & -\dfrac{\sqrt{6}}{6} & \dfrac{\sqrt{6}}{3} & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$
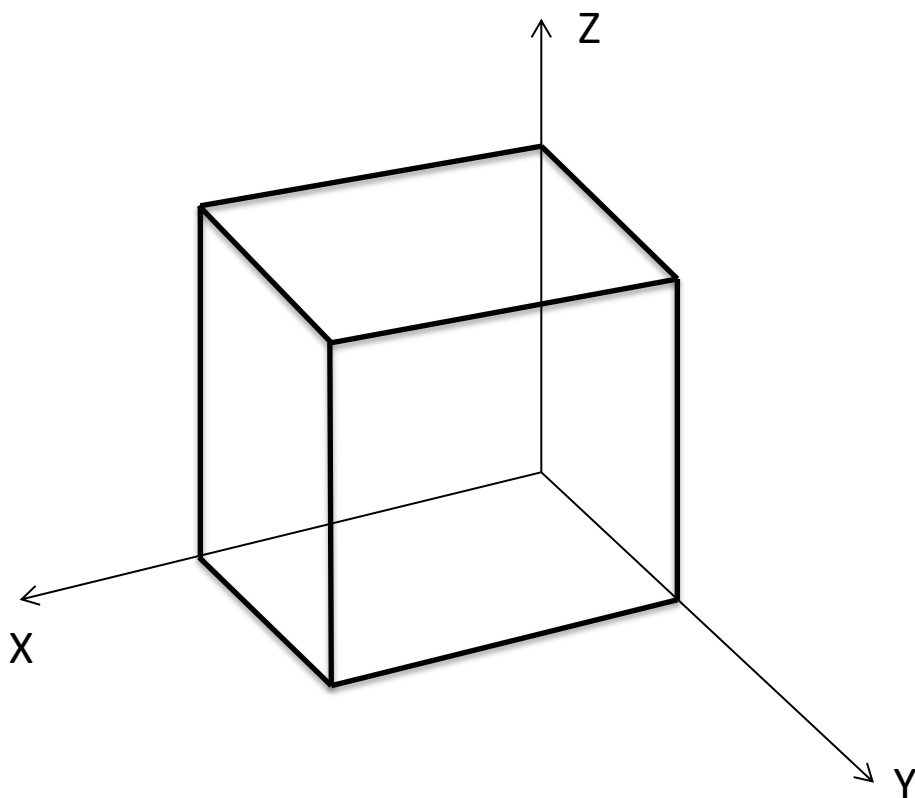
ПРАВОЪГЪЛНА ДИМЕТРИЯ

Изометрия: $p = 2q = r$

$\sphericalangle(Ox, Oy) = 131°25'$
$\sphericalangle(Ox, Oz) = 97°10'$
$\sphericalangle(Oy, Oz) = 131°25'$

$$C = \begin{pmatrix} -\dfrac{\sqrt{14}}{4} & \dfrac{\sqrt{2}}{4} & 0 & 0 \\ -\dfrac{\sqrt{2}}{12} & -\dfrac{\sqrt{14}}{12} & \dfrac{\sqrt{8}}{3} & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

$$C = \begin{pmatrix} -0,93 & 0,35 & 0 & 0 \\ -0,12 & -0,31 & 0,94 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix} \cdot \begin{pmatrix} 1 \\ 0 \\ 1 \\ 1 \end{pmatrix}$$

$\bar{A}(0,0,0,1) \rightarrow A(0,0,0,1) \rightarrow A(0,0)$

$\bar{B}(0,1,0,1) \rightarrow B(0.35, -0.31, 0,1) \quad \rightarrow B(0.35, -0.31)$

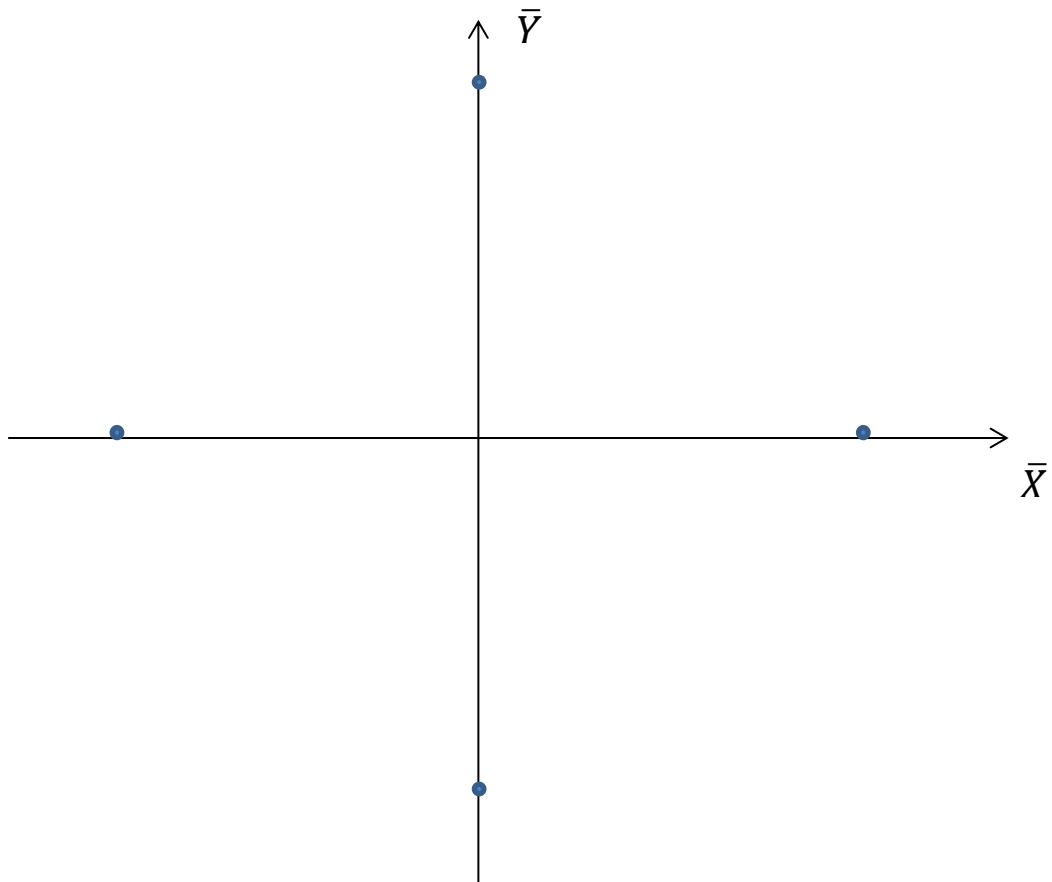$\bar{C}(1,1,0,1) \rightarrow C(-0.58, -0.43, 0,1) \rightarrow C(-0.58, -0.43)$

$\bar{D}(1,0,0,1) \rightarrow D(-0.93, -0.12, 0,1) \rightarrow D(-0.93, -0.12)$

$\bar{A}_1(0,0,1,1) \rightarrow A_1(0, 0.94, 0,1) \quad\quad \rightarrow A_1(0, 0.94)$

$\bar{B}_1(0,1,1,1) \rightarrow B_1(0.35, 0.63, 0,1) \quad \rightarrow B_1(0.35, 0.63)$

$\bar{C}_1(1,1,1,1) \rightarrow C_1(-0.58, 0.51, 0,1) \rightarrow C_1(-0.58, 0.51)$

$\bar{D}_1(1,0,1,1) \rightarrow D_1(-0.93, 0.82, 0,1) \rightarrow D_1(-0.93, 0.82)$

ПЕРСПЕКТИВА

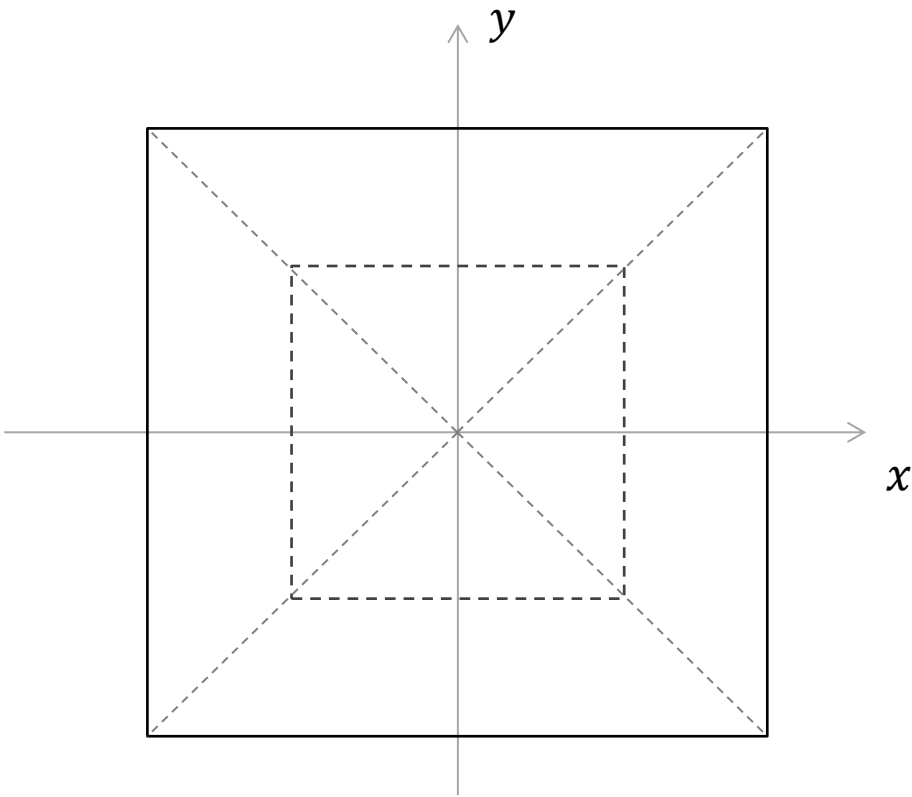## АНАЛИТИЧНО ЗАДАВАНЕ
ВИДОВЕ ОБРАЗИ

$$\pi \equiv Oxy, \qquad S\left(\frac{1}{2}, \frac{1}{2}, -2, 1\right)$$

$$A\left(-\frac{1}{2}, -\frac{1}{2}, 0, 2\right) \quad A_1\left(-\frac{1}{2}, -\frac{1}{2}, 0, 3\right)$$

$$B\left(\frac{1}{2}, -\frac{1}{2}, 0, 2\right) \quad B_1\left(\frac{1}{2}, -\frac{1}{2}, 0, 3\right)$$

$$C\left(\frac{1}{2}, \frac{1}{2}, 0, 2\right) \quad C_1\left(\frac{1}{2}, \frac{1}{2}, 0, 3\right)$$

$$D\left(-\frac{1}{2}, \frac{1}{2}, 0, 2\right) \quad D_1\left(-\frac{1}{2}, \frac{1}{2}, 0, 3\right)$$
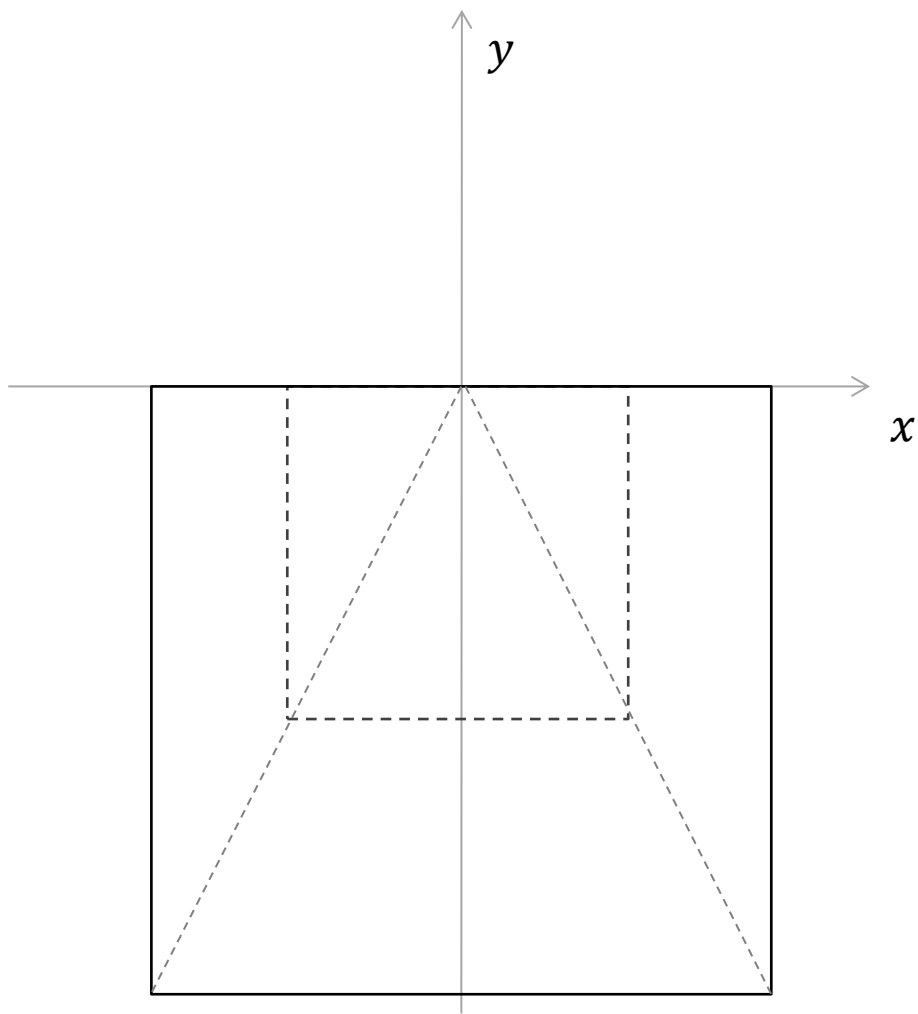
$$\pi \equiv Oxy, \qquad S\left(\frac{1}{2}, 1, -2, 1\right)$$

$$A\left(-\frac{1}{2}, -1, 0, 2\right) \quad A_1\left(-\frac{1}{2}, -1, 0, 3\right)$$
$$B\left(\frac{1}{2}, -1, 0, 2\right) \quad B_1\left(\frac{1}{2}, -1, 0, 3\right)$$
$$C\left(\frac{1}{2}, 0, 0, 2\right) \quad C_1\left(\frac{1}{2}, 0, 0, 3\right)$$
$$D\left(-\frac{1}{2}, 0, 0, 2\right) \quad D_1\left(-\frac{1}{2}, 0, 0, 3\right)$$
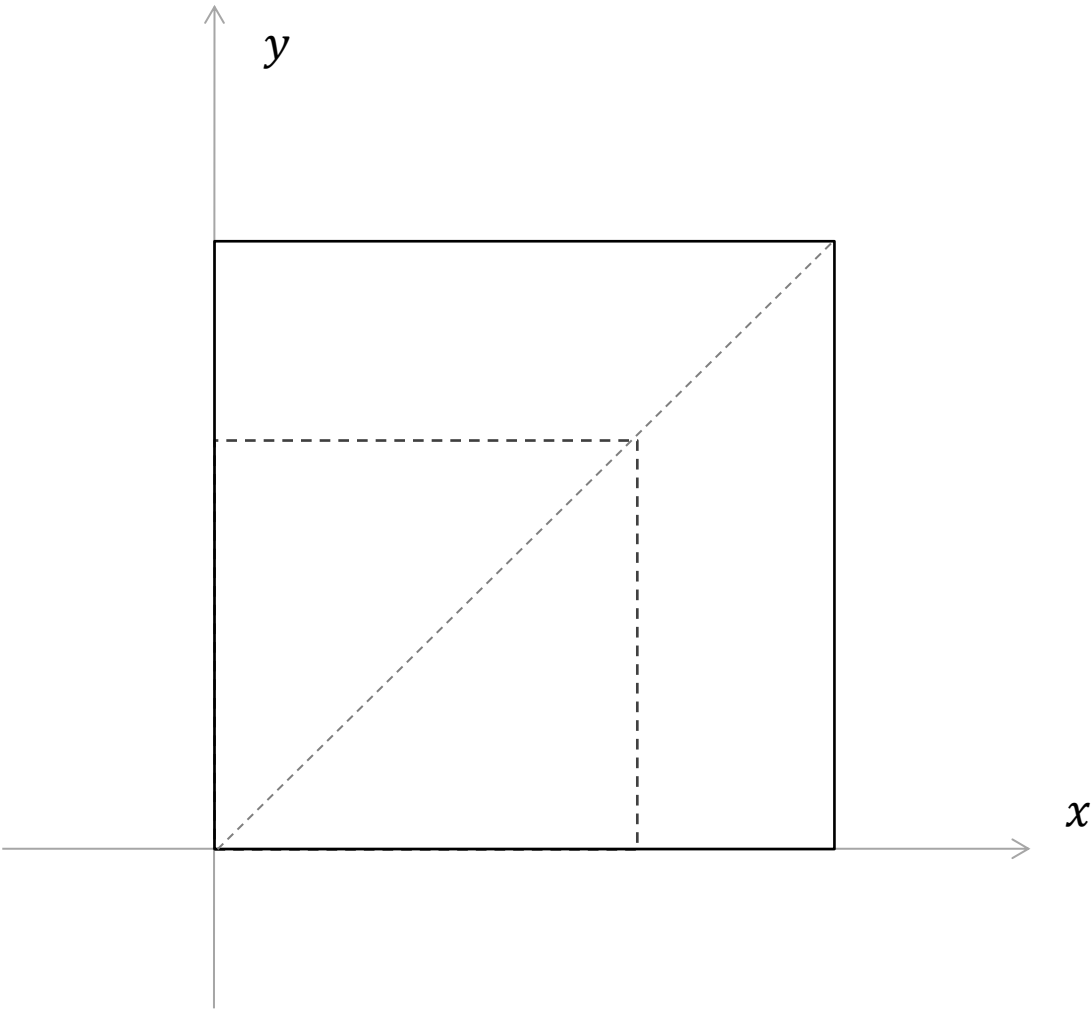
$\pi \equiv Oxy,$ $S(0, 0, -2, 1)$

$A(0, 0, 0, 2)$ $A_1(0, 0, 0, 3)$
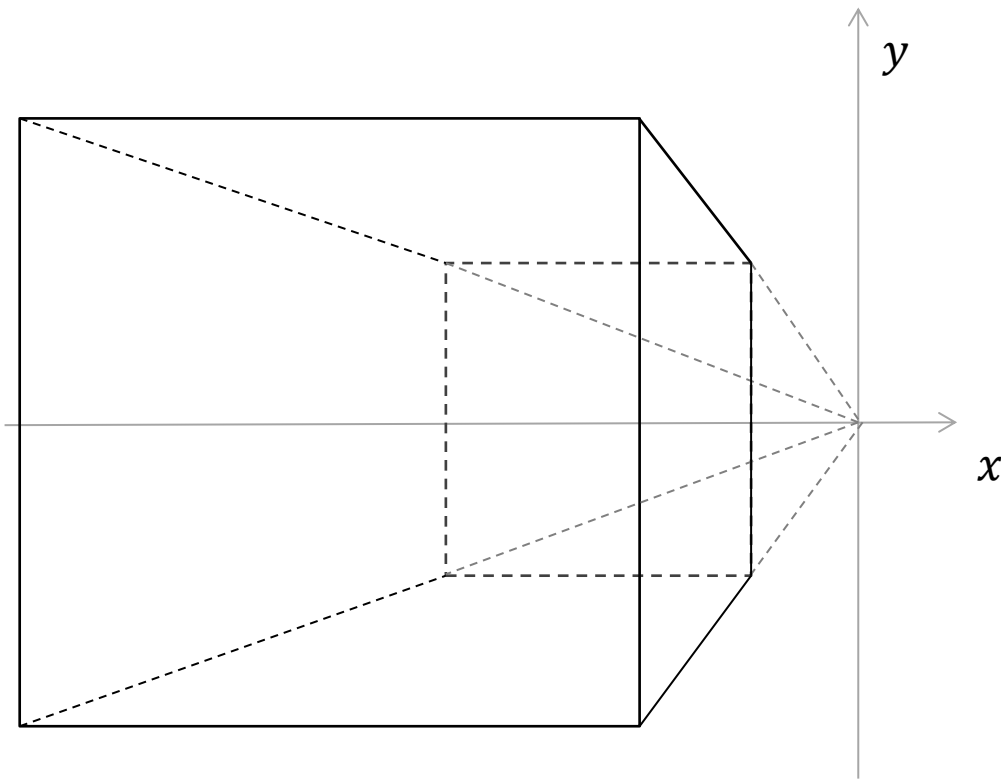$B(1, 0, 0, 2)$ $B_1(1, 0, 0, 3)$
$C(1, 1, 0, 2)$ $C_1(1, 1, 0, 3)$
$D(0, 1, 0, 2)$ $D_1(0, 1, 0, 3)$

$$\pi \equiv Oxy, \qquad S\left(\frac{3}{2}, \frac{1}{2}, -2, 1\right)$$

$$A\left(-\frac{3}{2}, -\frac{1}{2}, 0, 2\right) \qquad A_1\left(-\frac{3}{2}, -\frac{1}{2}, 0, 3\right)$$

$$B\left(-\frac{1}{2}, -\frac{1}{2}, 0, 2\right) \qquad B_1\left(-\frac{1}{2}, -\frac{1}{2}, 0, 3\right)$$

$$C\left(-\frac{1}{2}, \quad \frac{1}{2}, 0, 2\right) \qquad C_1\left(-\frac{1}{2}, \quad \frac{1}{2}, 0, 3\right)$$

$$D\left(-\frac{3}{2}, \quad \frac{1}{2}, 0, 2\right) \qquad D_1\left(-\frac{3}{2}, \quad \frac{1}{2}, 0, 3\right)$$
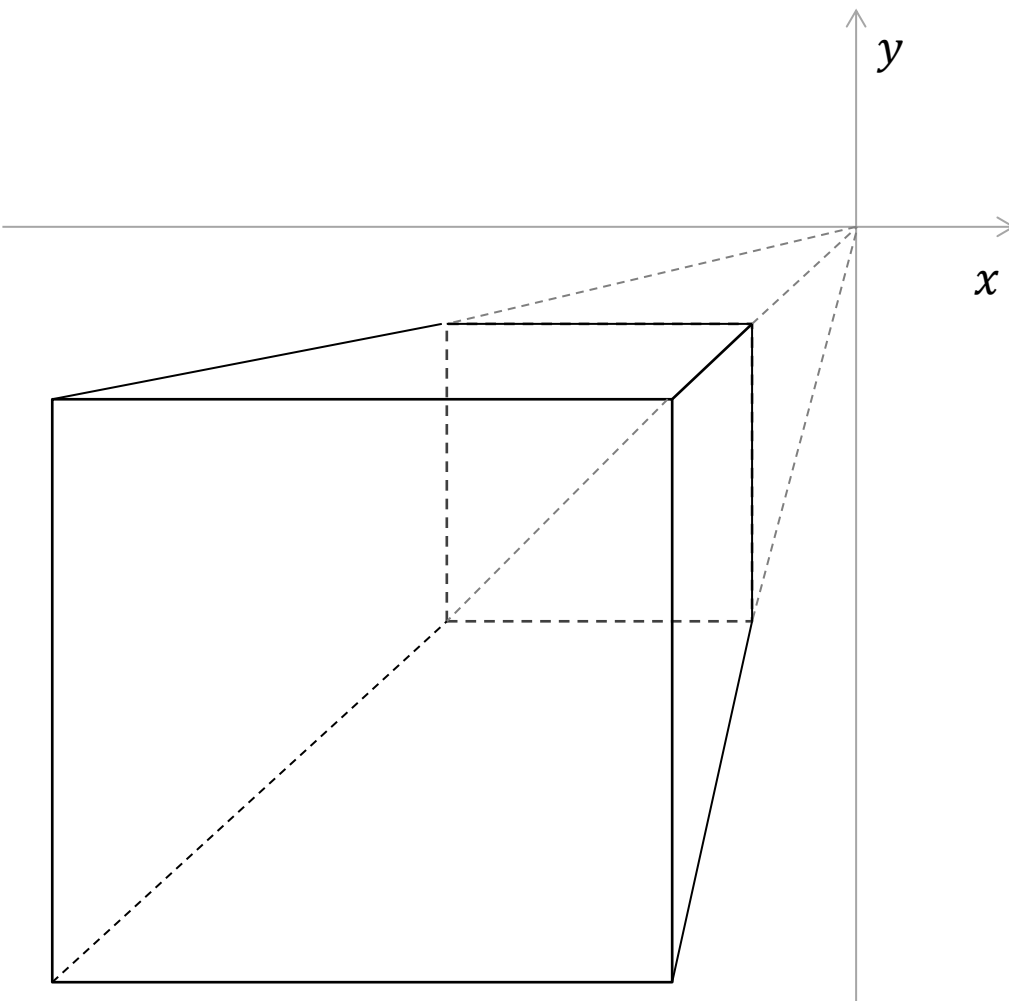
$$\pi \equiv Oxy, \qquad S\left(\frac{3}{2}, \frac{3}{2}, -2, 1\right)$$

$$A\left(-\frac{3}{2}, -\frac{3}{2}, 0, 2\right) \qquad A_1\left(-\frac{3}{2}, -\frac{3}{2}, 0, 3\right)$$
$$B\left(-\frac{1}{2}, -\frac{3}{2}, 0, 2\right) \qquad B_1\left(-\frac{1}{2}, -\frac{3}{2}, 0, 3\right)$$
$$C\left(-\frac{1}{2}, -\frac{1}{2}, 0, 2\right) \qquad C_1\left(-\frac{1}{2}, -\frac{1}{2}, 0, 3\right)$$
$$D\left(-\frac{3}{2}, -\frac{1}{2}, 0, 2\right) \qquad D_1\left(-\frac{3}{2}, -\frac{1}{2}, 0, 3\right)$$
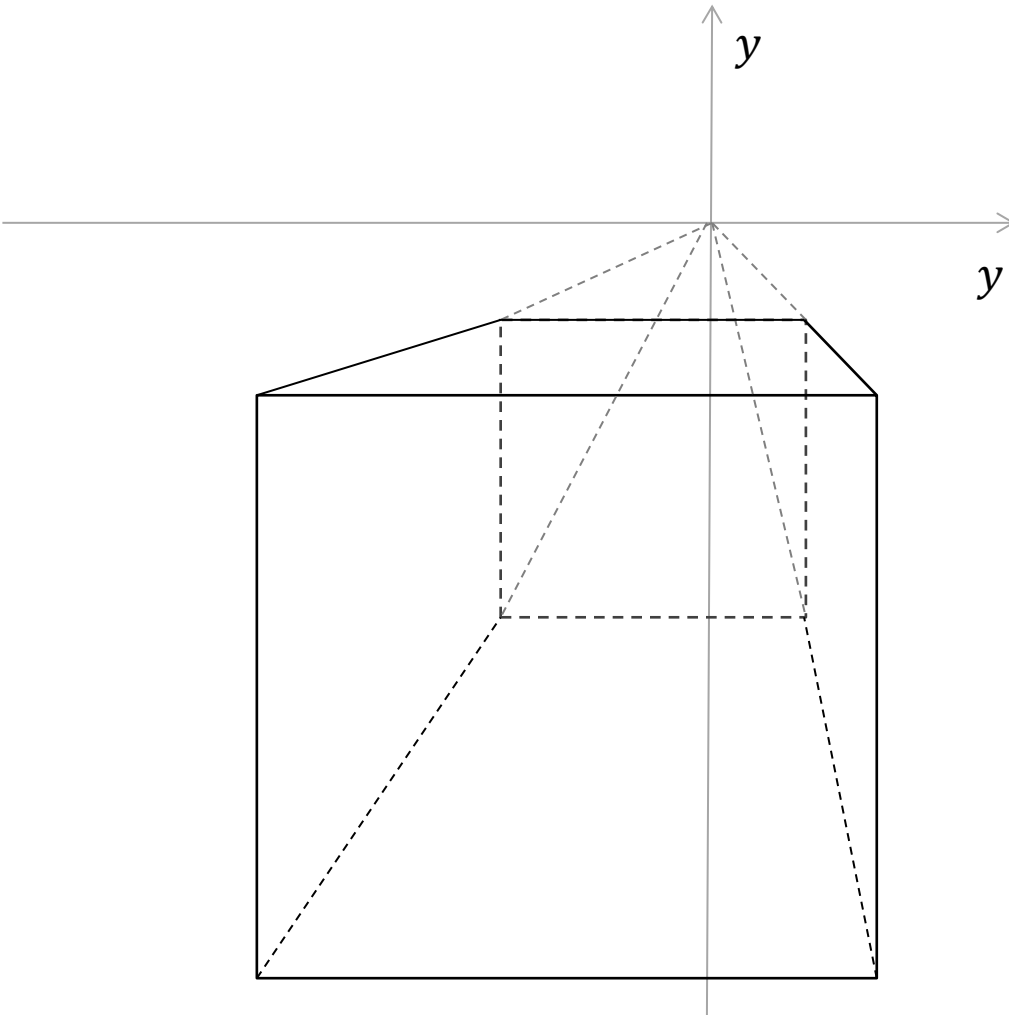
$$\pi \equiv Oxy, \qquad S\left(\frac{3}{4}, \frac{5}{4}, -2, 1\right)$$

$$A\left(-\frac{3}{4}, -\frac{5}{4}, 0, 2\right) \qquad A_1\left(-\frac{3}{4}, -\frac{5}{4}, 0, 3\right)$$

$$B\left(\frac{1}{4}, -\frac{5}{4}, 0, 2\right) \qquad B_1\left(\frac{1}{4}, -\frac{5}{4}, 0, 3\right)$$

$$C\left(\frac{1}{4}, -\frac{1}{4}, 0, 2\right) \qquad C_1\left(\frac{1}{4}, -\frac{1}{4}, 0, 3\right)$$

$$D\left(-\frac{3}{4}, -\frac{1}{4}, 0, 2\right) \qquad D_1\left(-\frac{3}{4}, -\frac{1}{4}, 0, 3\right)$$

y

y

АНАЛИТИЧНО ЗАДАВАНЕ НА ПЕРСПЕКТИВА

Пространствената координатна система е $\bar{K} = \bar{O}\bar{x}\bar{y}\bar{z}$. Спрямо тази к.с.

$S(a, b, c, 1)$

$\pi \parallel \bar{O}\bar{x}\bar{y}, \qquad \pi[0, 0, 1, 1], \qquad \pi: z + 1 = 0$

$\Sigma \parallel \bar{O}\bar{x}\bar{z}, \qquad \Sigma[0, 1, 0, \text{n}]$

$\rho = A.a + B.b + C.c + D.1 = c + 1$

Координатната система $K = Oxyz$, спрямо която нанасяме образа, е избрана по следния начин:

$\pi \equiv Oxy$

$O \equiv S_0$ – главната точка на картината

$Ox \equiv h$ – хоризонта

Така за матрицата, с която действа перспективата, получаваме:

$$C = \begin{pmatrix} 1 & 0 & 0 & -a \\ 0 & 1 & 0 & -b \\ 0 & 0 & 0 & 0 \\ 0 & 0 & \dfrac{-1}{c+1} & \dfrac{c}{c+1} \end{pmatrix}$$

$$C = \begin{pmatrix} 1 & 0 & 0 & -\frac{3}{2} \\ 0 & 1 & 0 & -\frac{1}{2} \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{pmatrix} \qquad S\left(\frac{3}{2}, \frac{1}{2}, -2, 1\right)$$

$$\bar{A}(0,0,0,1) \rightarrow A\left(-\frac{3}{2}, -\frac{1}{2}, 0, 2\right) \rightarrow A\left(-\frac{3}{4}, -\frac{1}{4}\right)$$

$$\bar{B}(0,1,0,1) \rightarrow B\left(-\frac{1}{2}, -\frac{1}{2}, 0, 2\right) \rightarrow B\left(-\frac{1}{4}, -\frac{1}{4}\right)$$

$$\bar{C}(1,1,0,1) \rightarrow C\left(-\frac{1}{2}, \frac{1}{2}, 0, 2\right) \rightarrow C\left(-\frac{1}{4}, \frac{1}{4}\right)$$

$$\bar{D}(1,0,0,1) \rightarrow D\left(-\frac{3}{2}, \frac{1}{2}, 0, 2\right) \rightarrow D\left(-\frac{3}{4}, \frac{1}{4}\right)$$

$$\bar{A}_1(0,0,1,1) \rightarrow A_1\left(-\frac{3}{2}, -\frac{1}{2}, 0, 3\right) \rightarrow A_1\left(-\frac{3}{6}, -\frac{1}{6}\right)$$

$$\bar{B}_1(0,1,1,1) \rightarrow B_1\left(-\frac{1}{2}, -\frac{1}{2}, 0, 3\right) \rightarrow B_1\left(-\frac{1}{6}, -\frac{1}{6}\right)$$

$$\bar{C}_1(1,1,1,1) \rightarrow C_1\left(-\frac{1}{2}, \frac{1}{2}, 0, 3\right) \rightarrow C_1\left(-\frac{1}{6}, \frac{1}{6}\right)$$

$$\bar{D}_1(1,0,1,1) \rightarrow D_1\left(-\frac{3}{2}, \frac{1}{2}, 0, 3\right) \rightarrow D_1\left(-\frac{3}{6}, \frac{1}{6}\right)$$