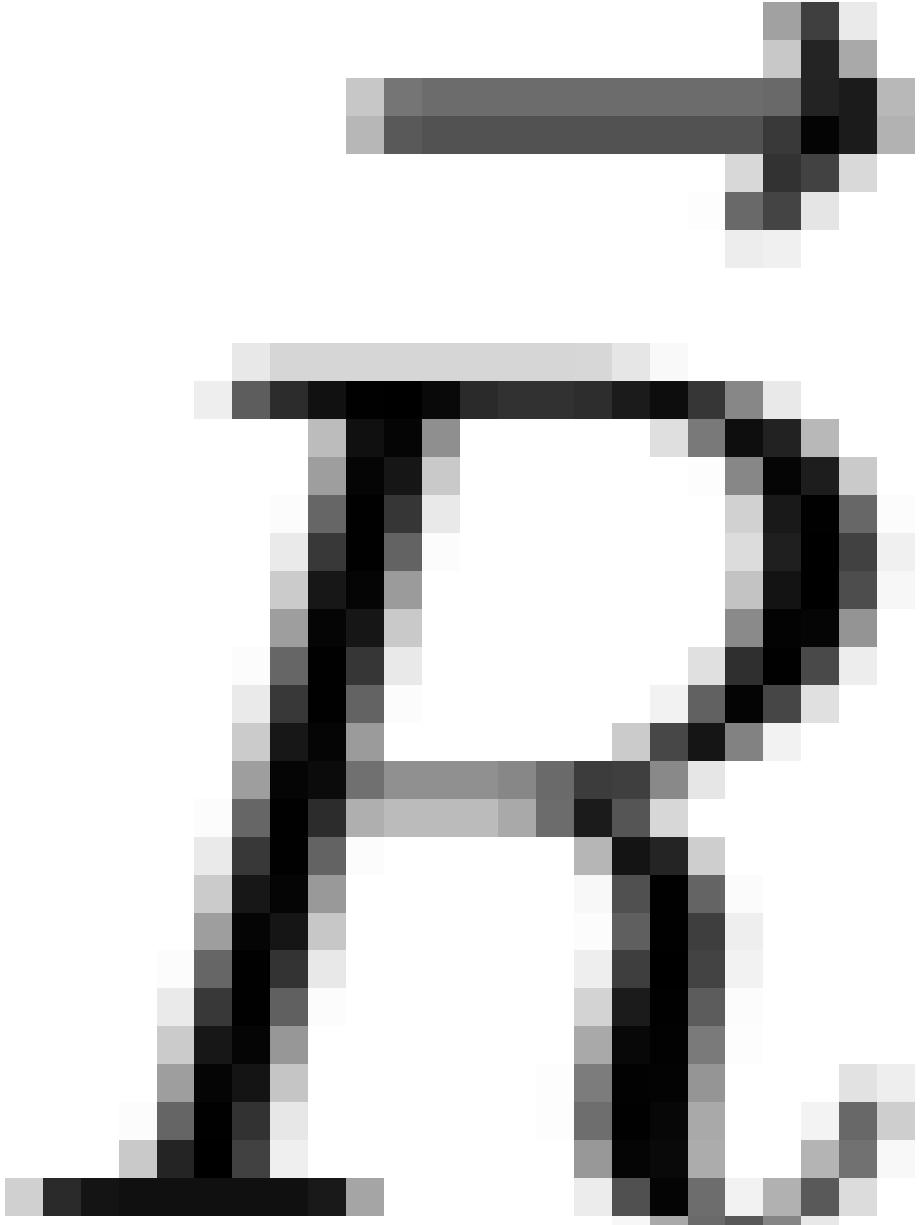


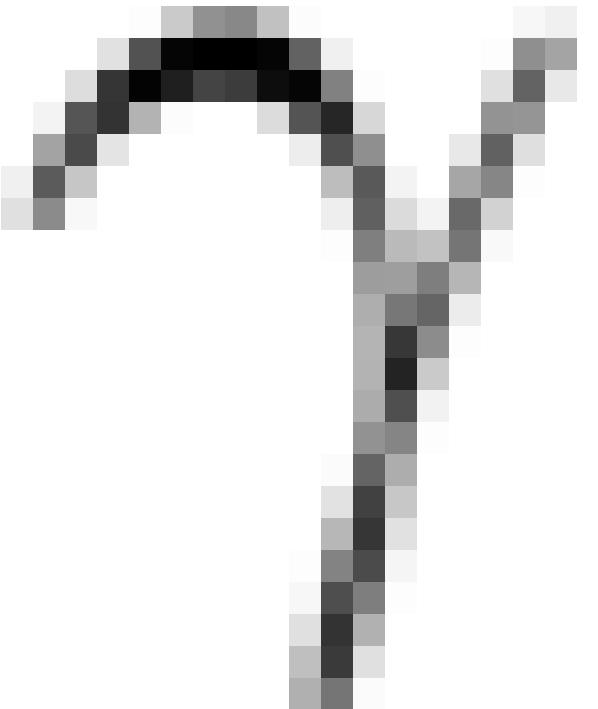
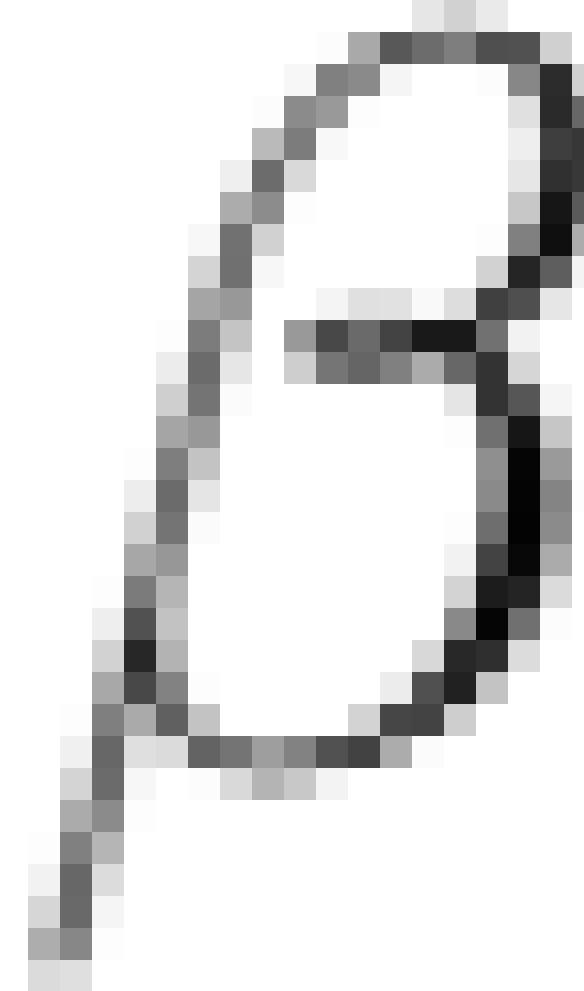
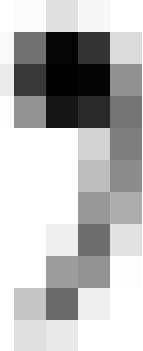
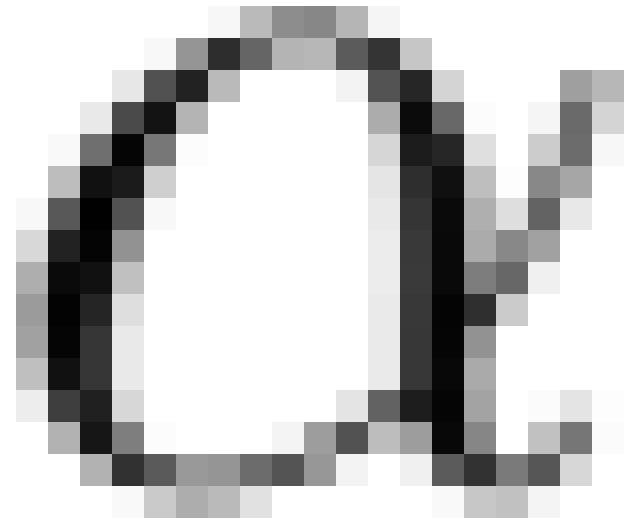
$$\vec{V}_1 = \vec{u}_x(5) + \vec{u}_y(-3), \quad \vec{V}_2 = \vec{u}_x(7) + \vec{u}_y(1) + \vec{u}_z(4) + \vec{u}_x(6).$$

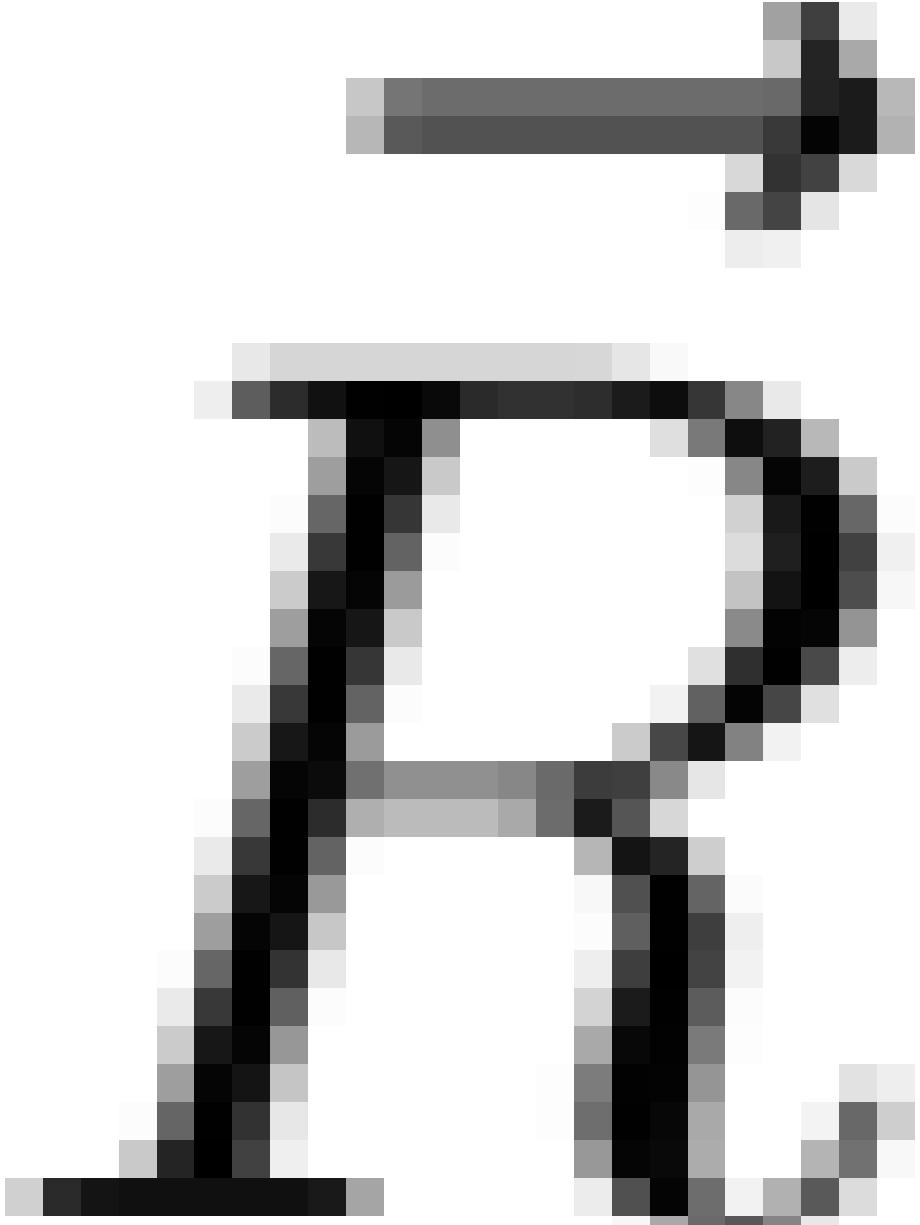
$$\vec{R} = \vec{V}_1 + \vec{V}_2 + \vec{V}_3.$$

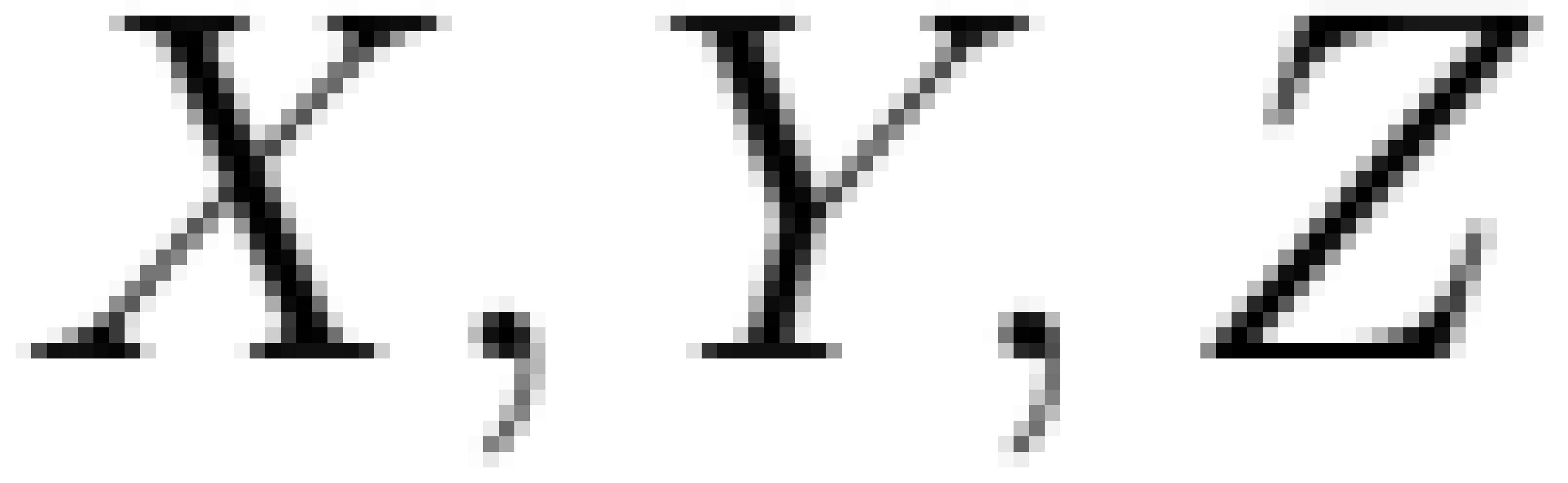
$$\vec{R} = (5 - 3 + 4)\vec{u}_x + (1 - 7 + 6)\vec{u}_y + (-2 + 1 + 0)\vec{u}_z.$$



$$\|\vec{R}\| = \sqrt{6^2 + 6^2 + 0^2} = \sqrt{72} = 6\sqrt{2}.$$







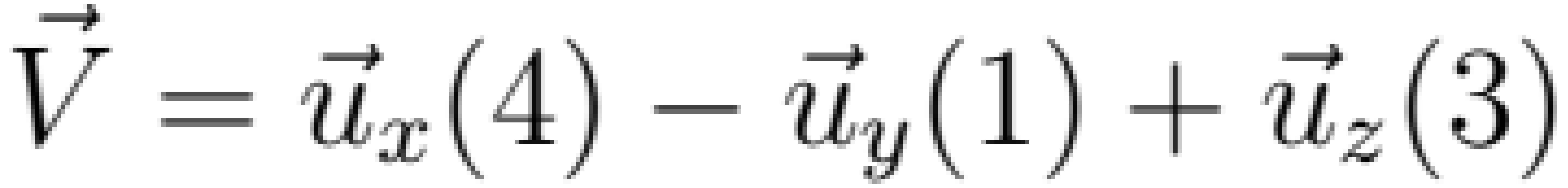
$$\cos(\alpha) = \frac{R_x}{\|\vec{R}\|}, \quad \cos(\beta) = \frac{R_y}{\|\vec{R}\|}, \quad \cos(\gamma) = \frac{R_z}{\|\vec{R}\|}.$$

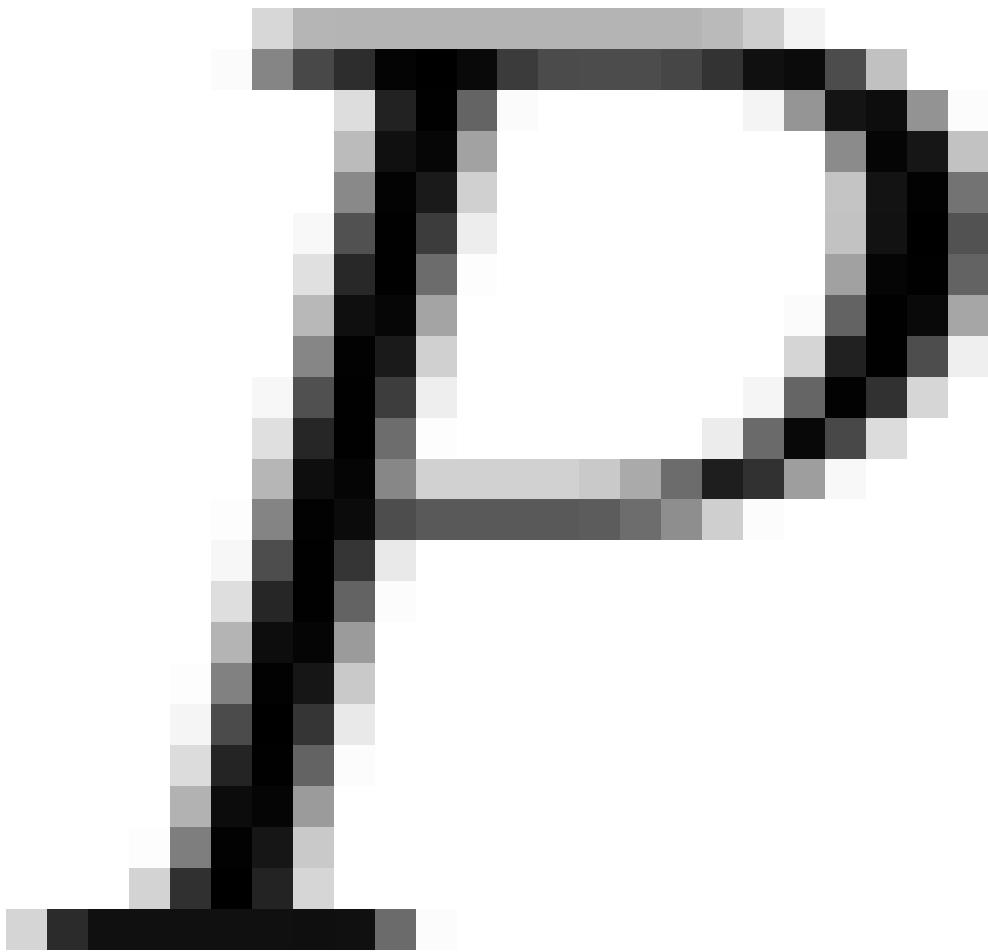
$$\cos(\alpha) = \frac{6}{6\sqrt{2}}, \quad \cos(\beta) = -\frac{1}{\sqrt{2}}, \quad \cos(\gamma) = -\frac{1}{\sqrt{2}}.$$

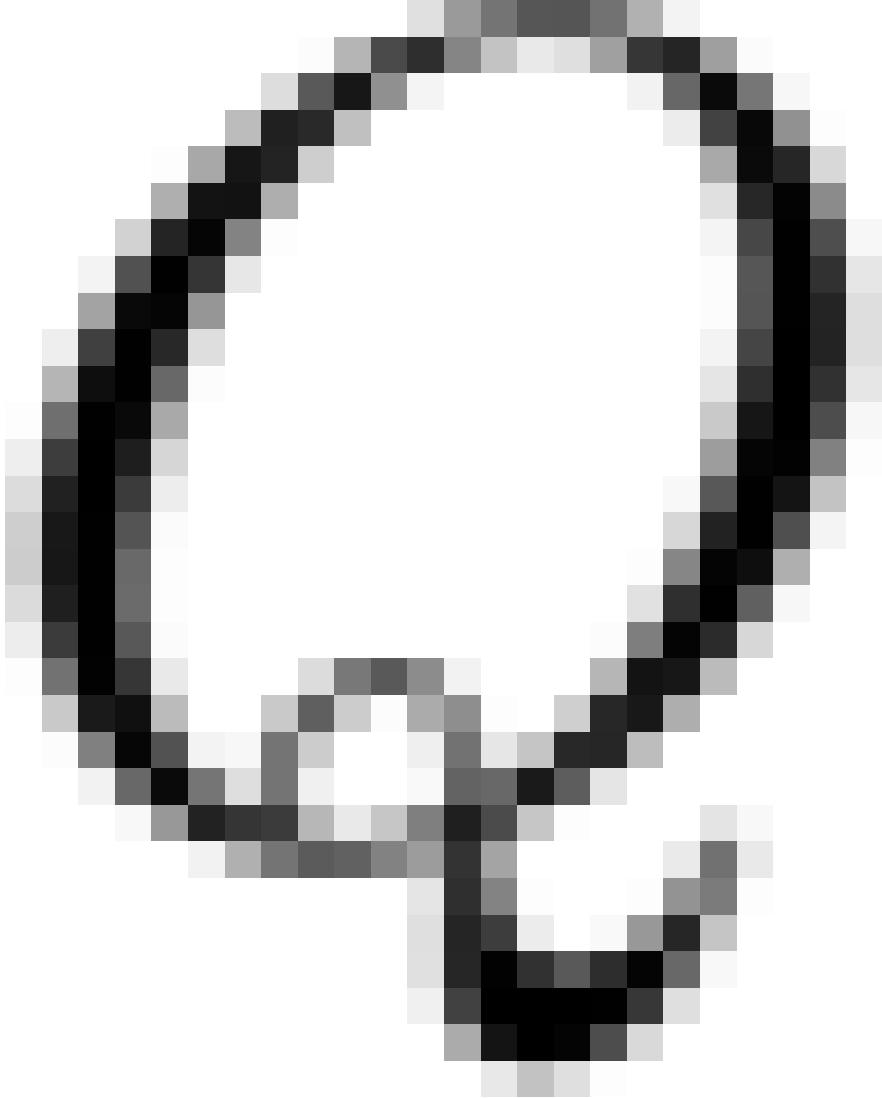
$$\pi = \frac{\alpha}{4}, \quad \beta = \frac{\pi}{4}, \quad \gamma = \frac{\pi}{2}.$$

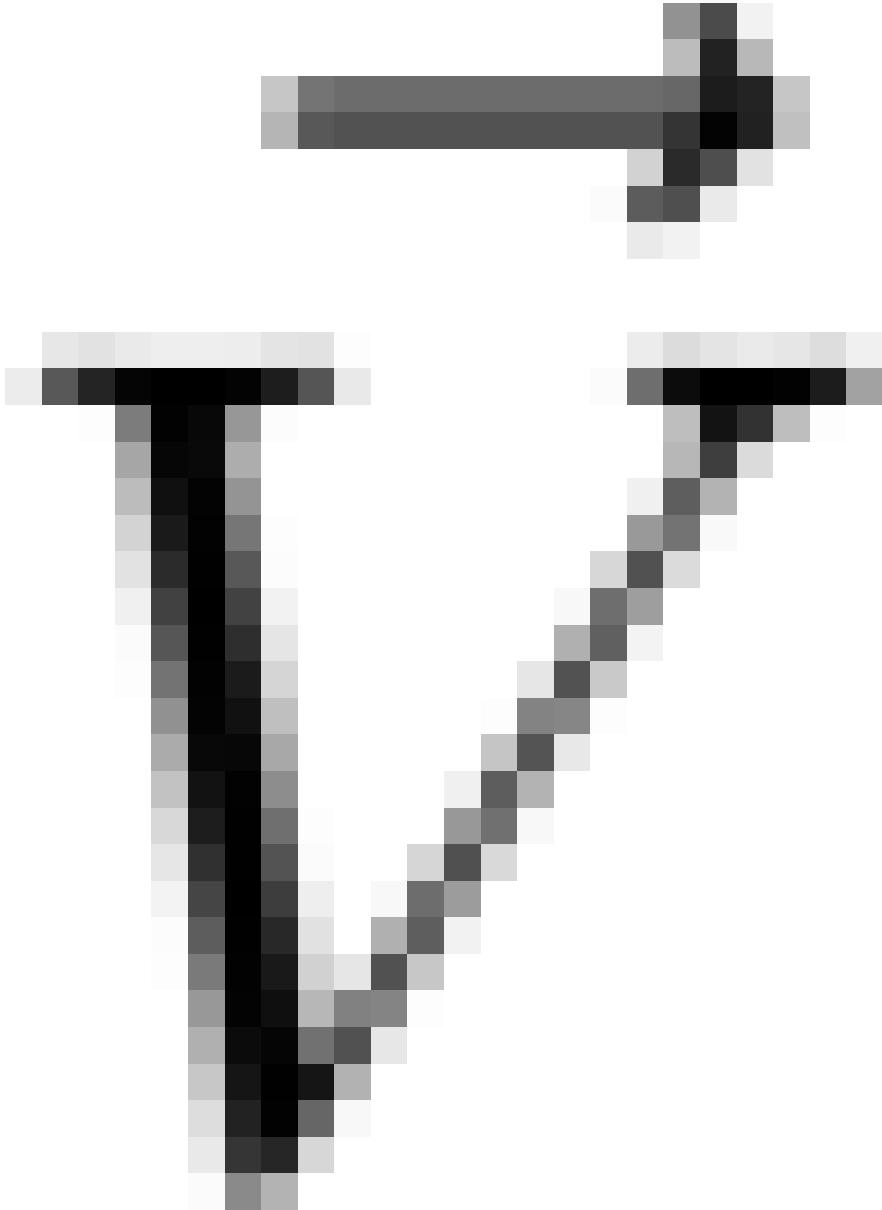


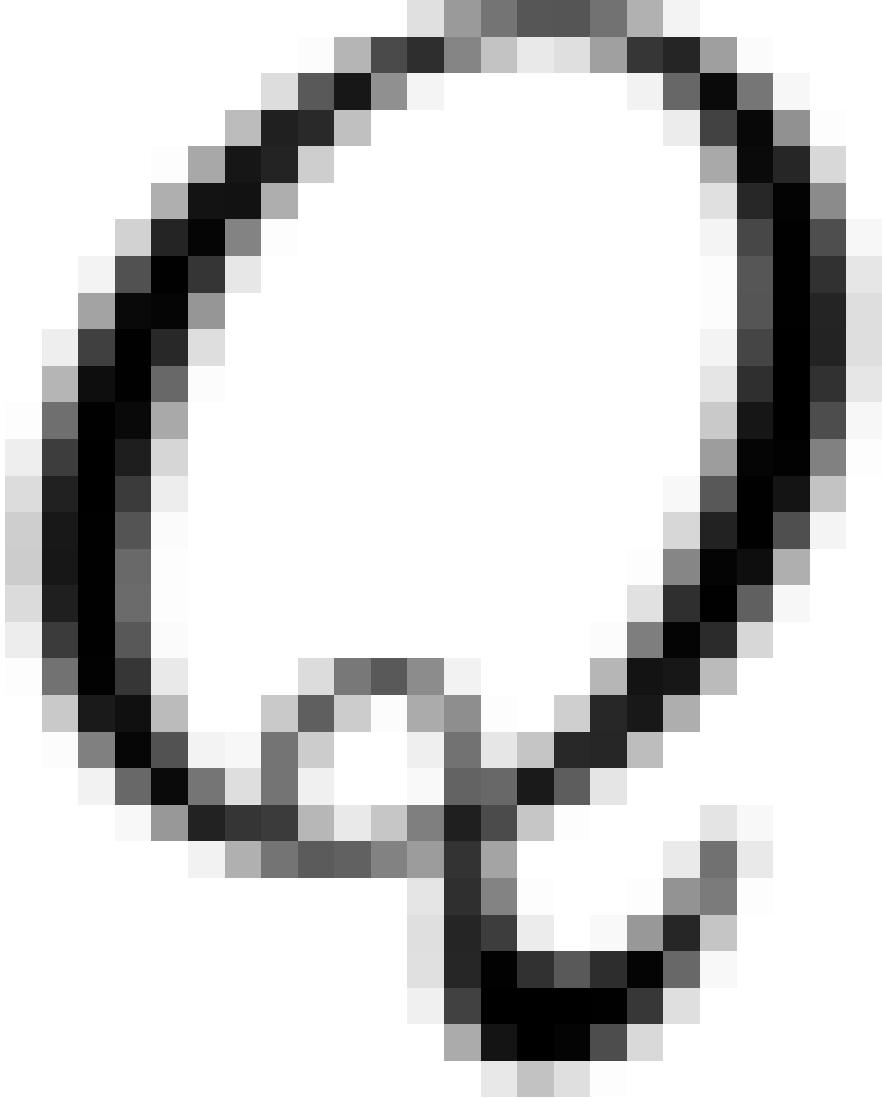


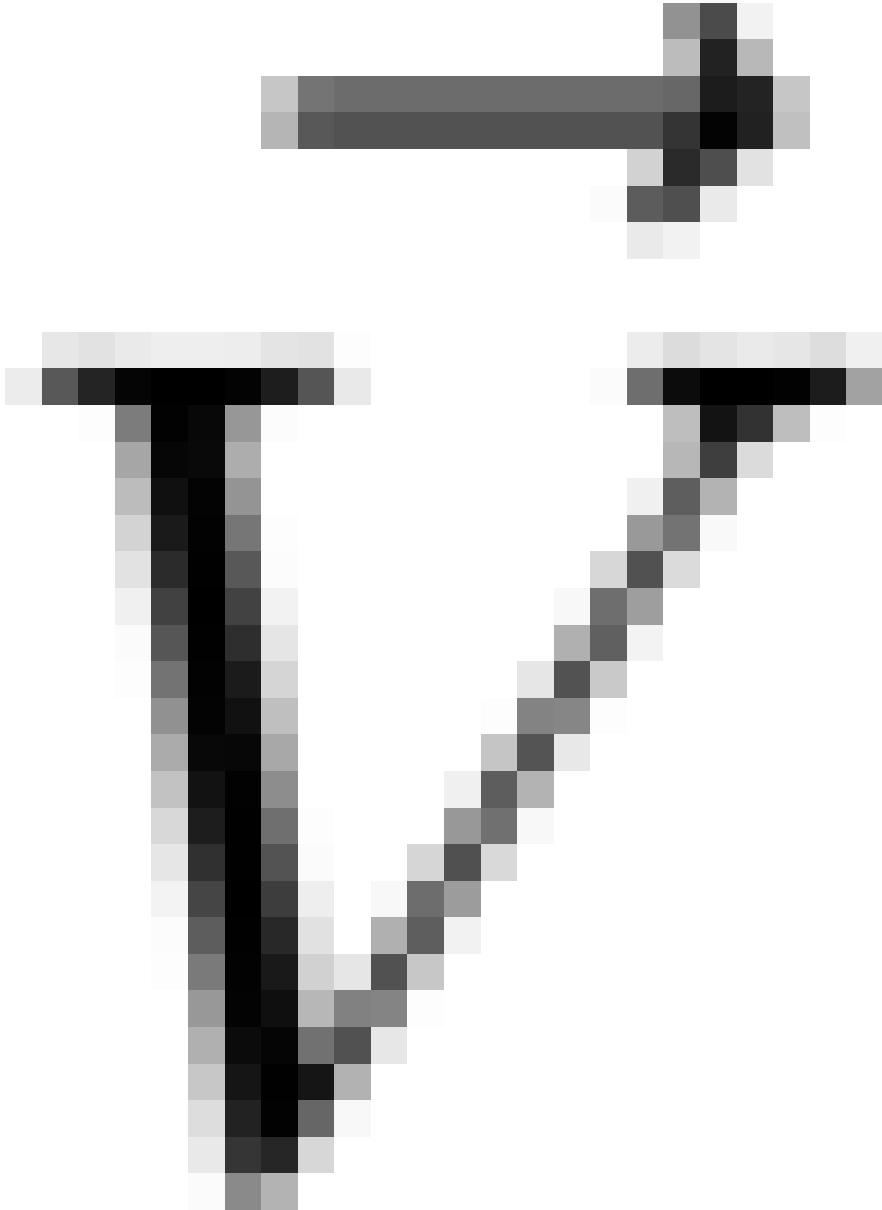


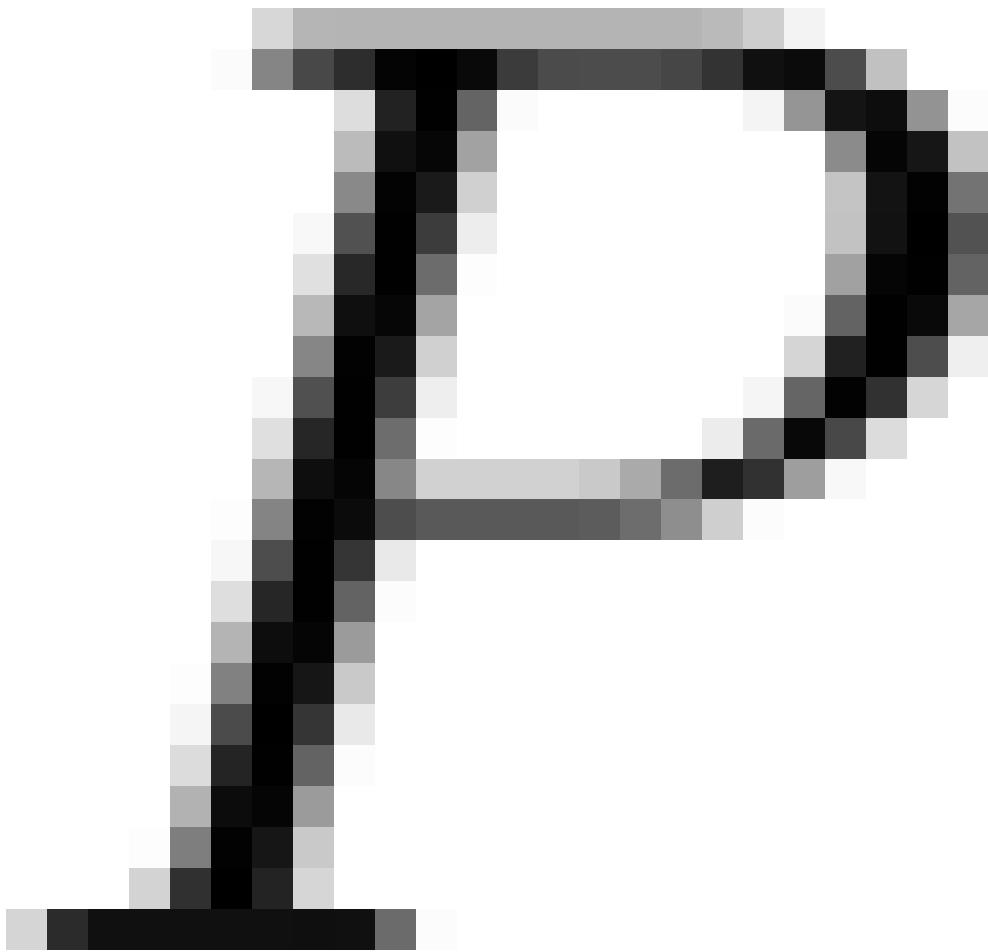


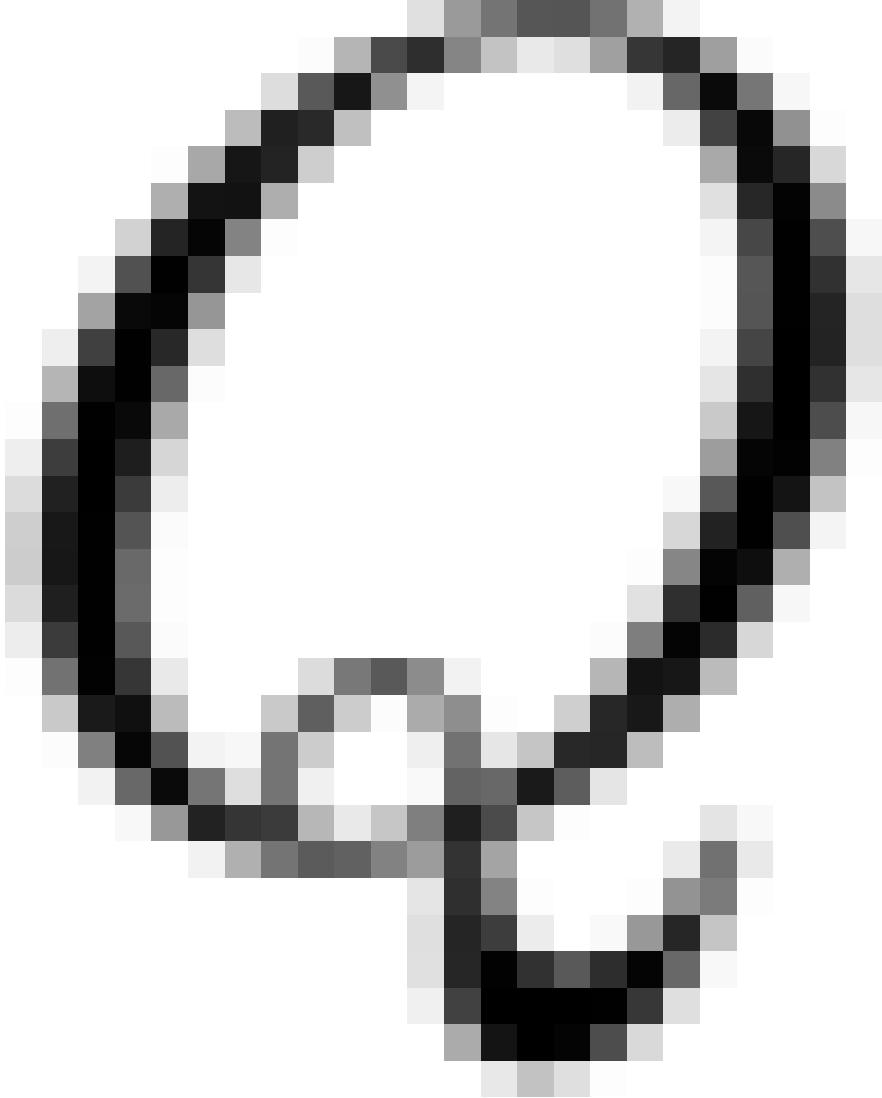


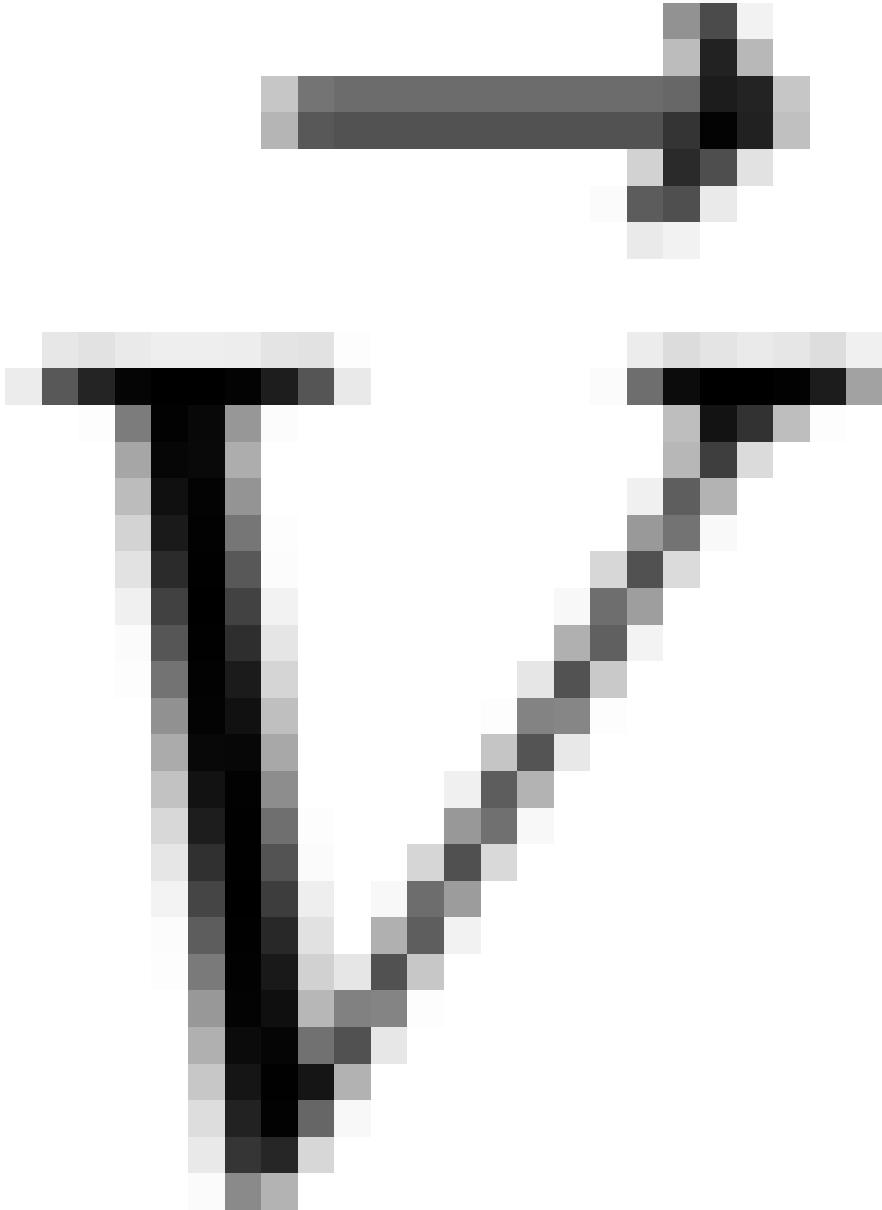










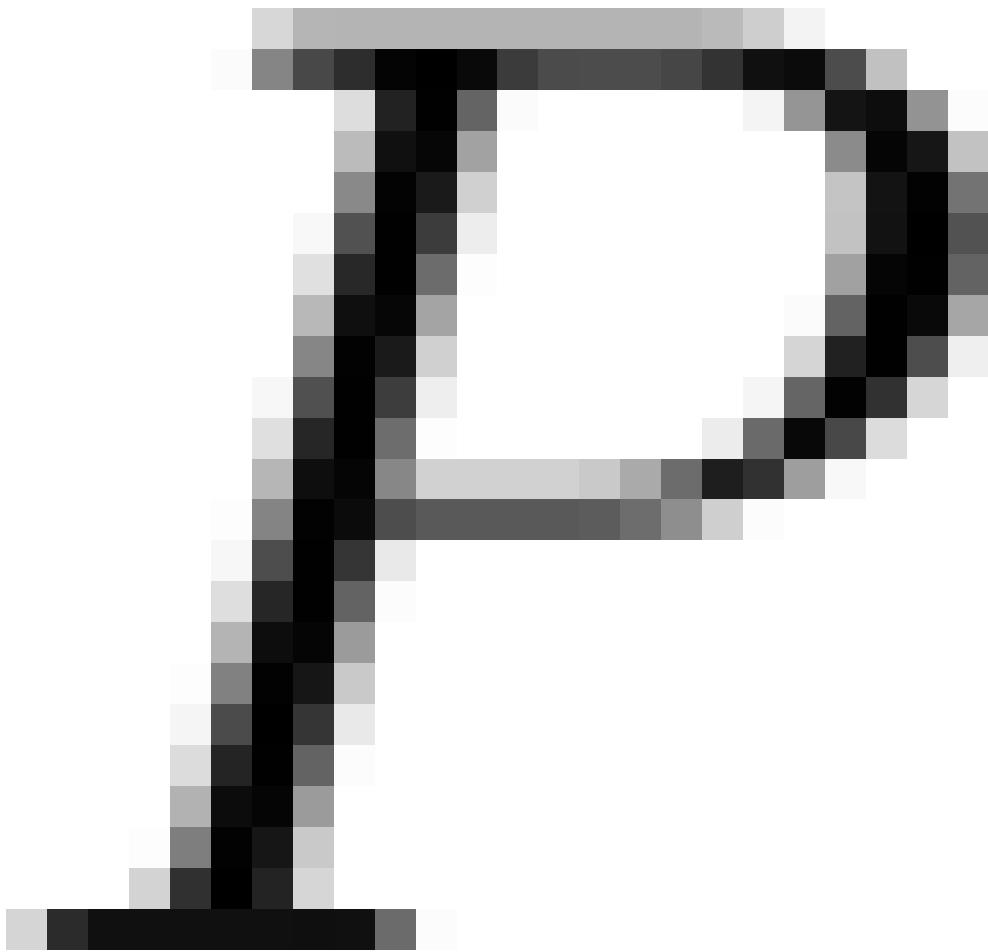


$$d(P, \ell) = \frac{\|(P - Q) \times \vec{V}\|}{\|\vec{V}\|}.$$

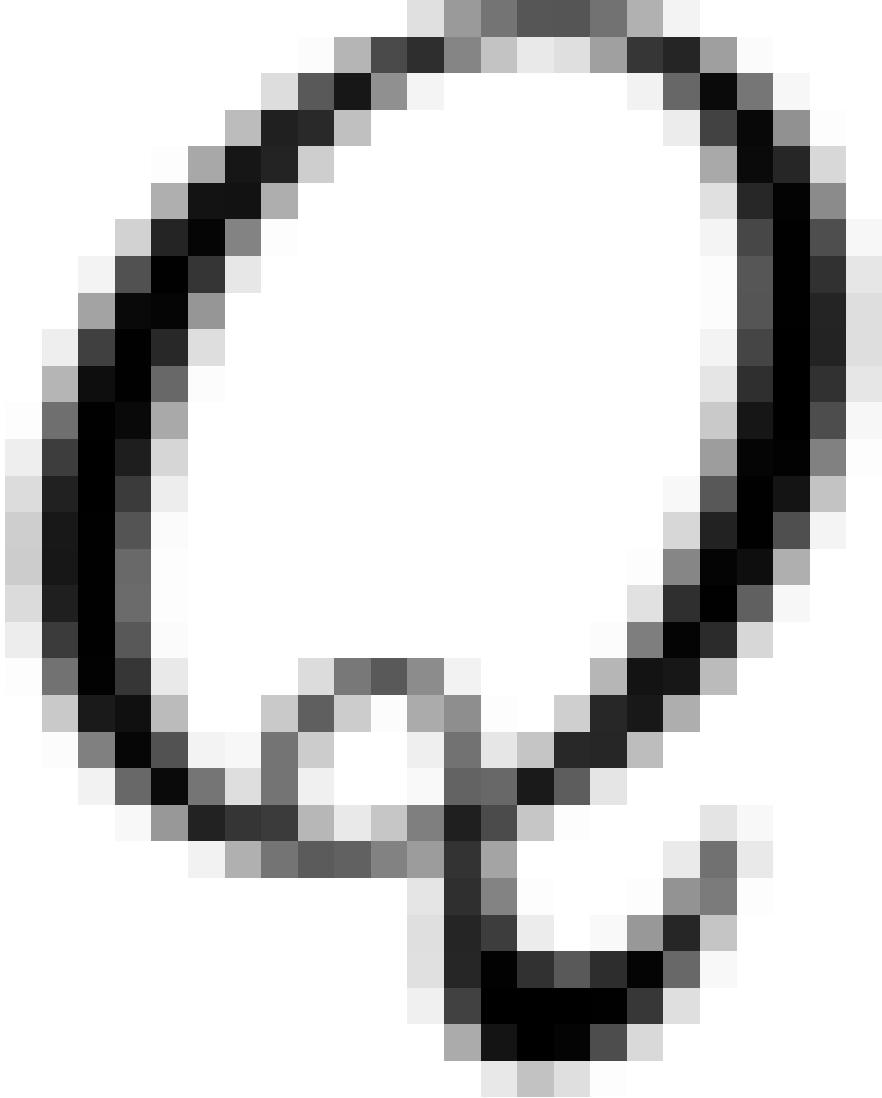
$$-P - Q = (4 + 3, 5 - 7 - 12) = (7, -1, -19).$$

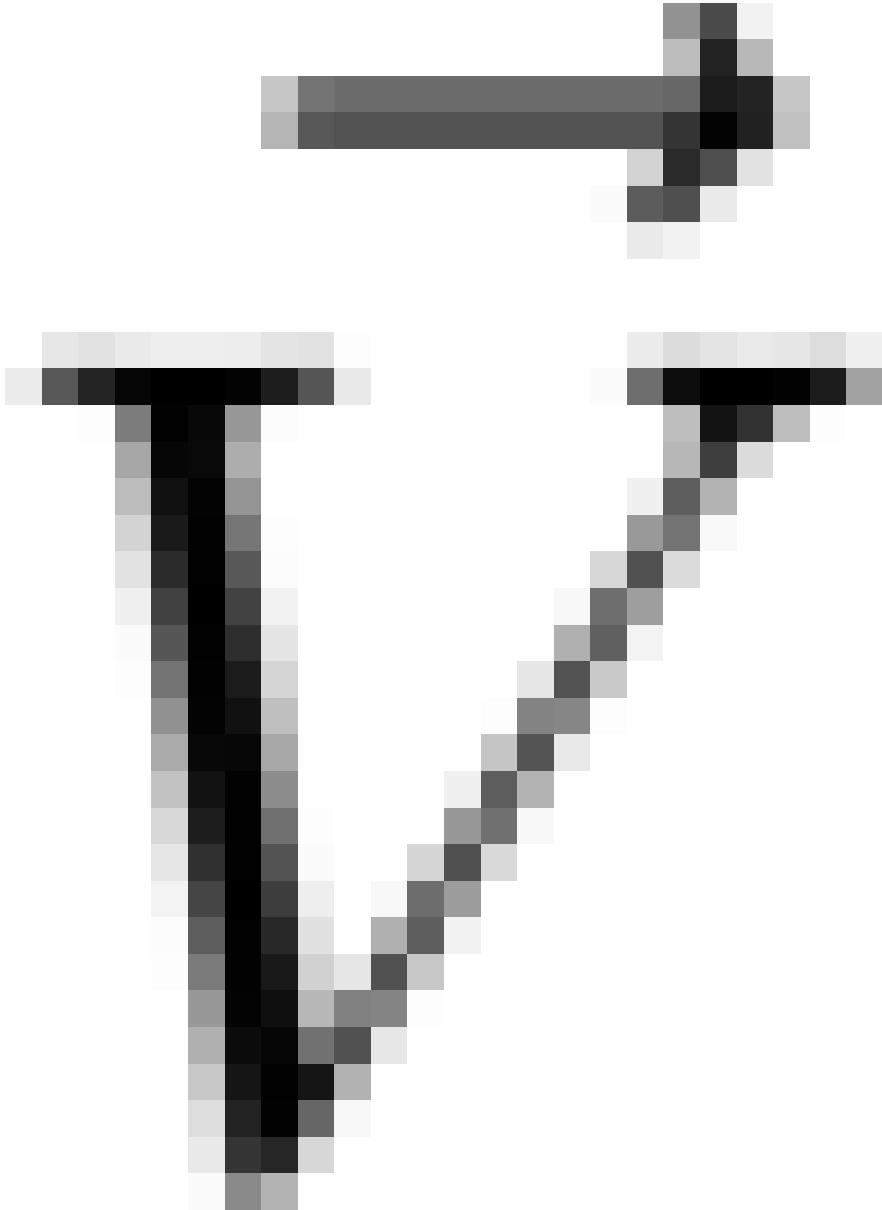
$$(P - Q) \times \vec{V} = \begin{vmatrix} \vec{u}_x & \vec{u}_y & \vec{u}_z \\ 7 & -1 & -19 \\ 4 & -1 & 3 \end{vmatrix} = (-22, -97, -3).$$

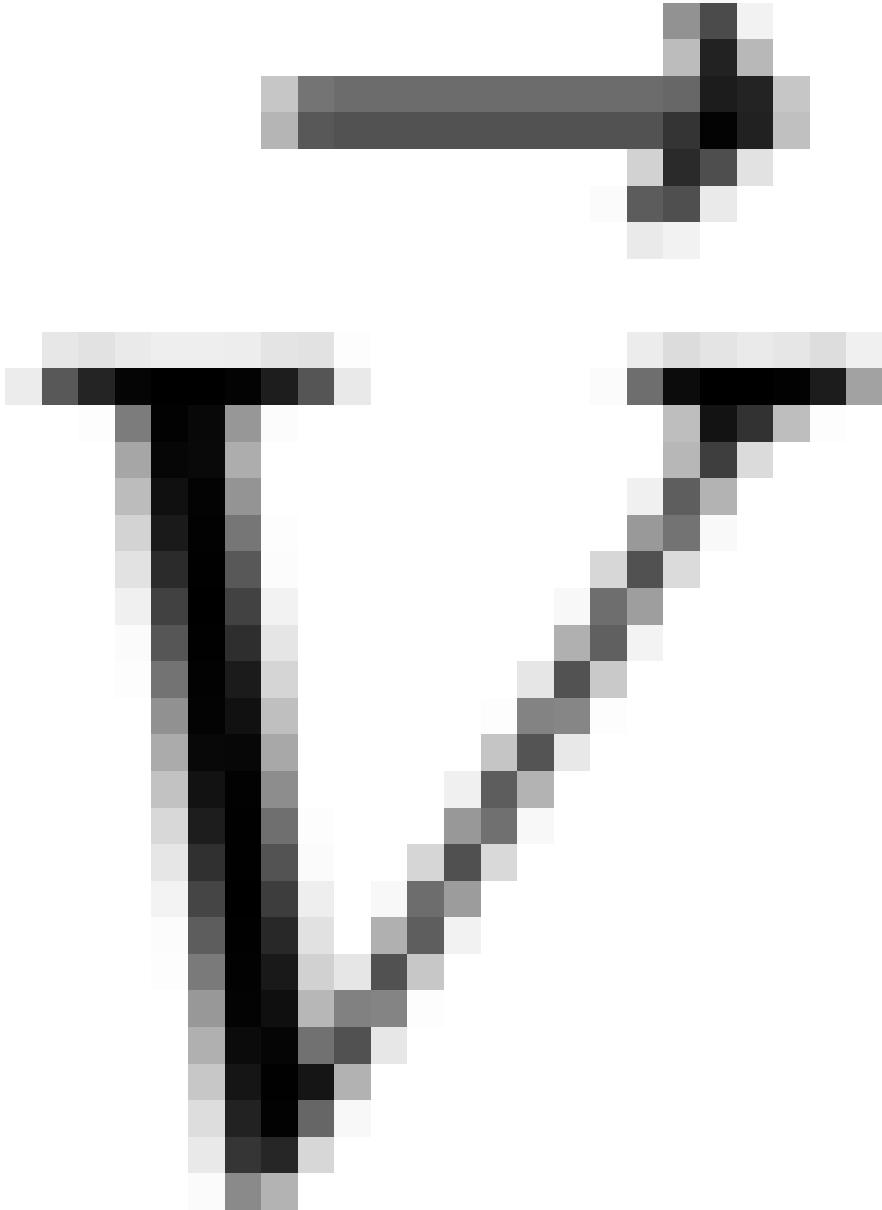
$$\|(P - Q) \times \vec{V}\| = \sqrt{(22)^2 + (-9)^2 + 3^2} = \sqrt{42^2 + (-1)^2 + 3^2} = \sqrt{990.2}$$

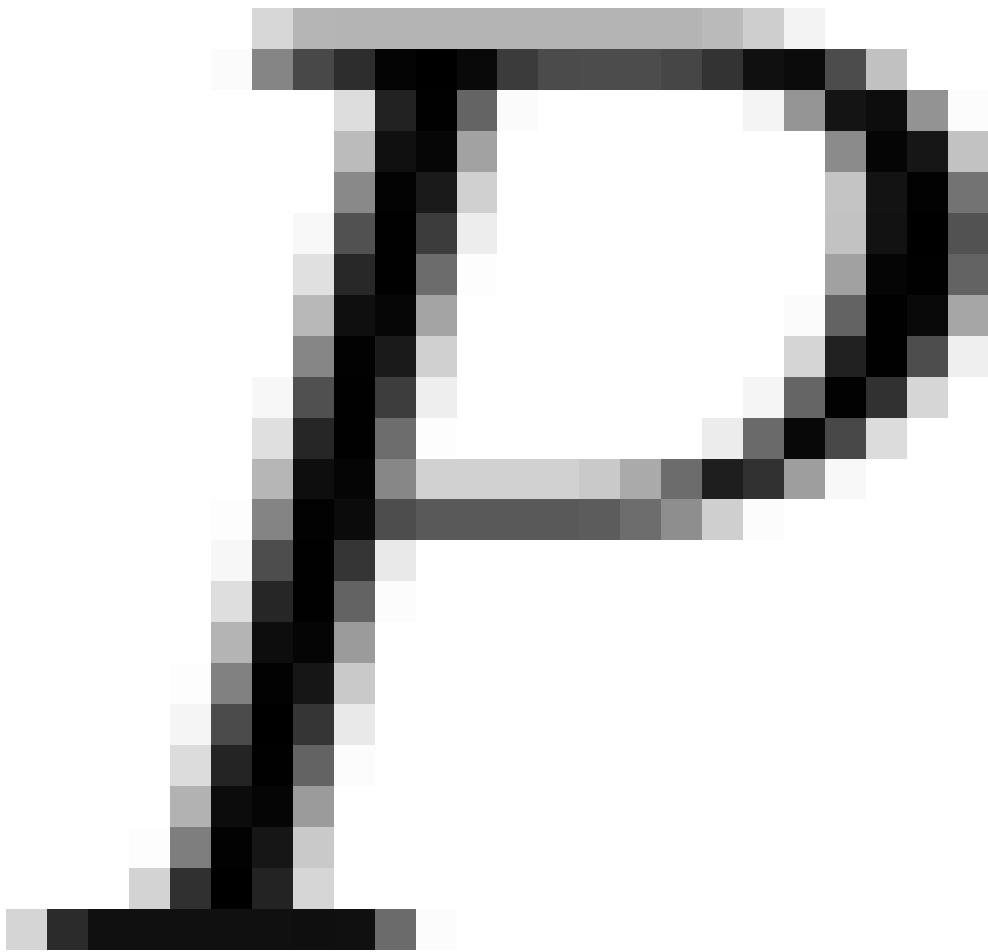


$$d(P, \ell) = \frac{\sqrt{9902}}{\sqrt{26}} = \sqrt{381}.$$





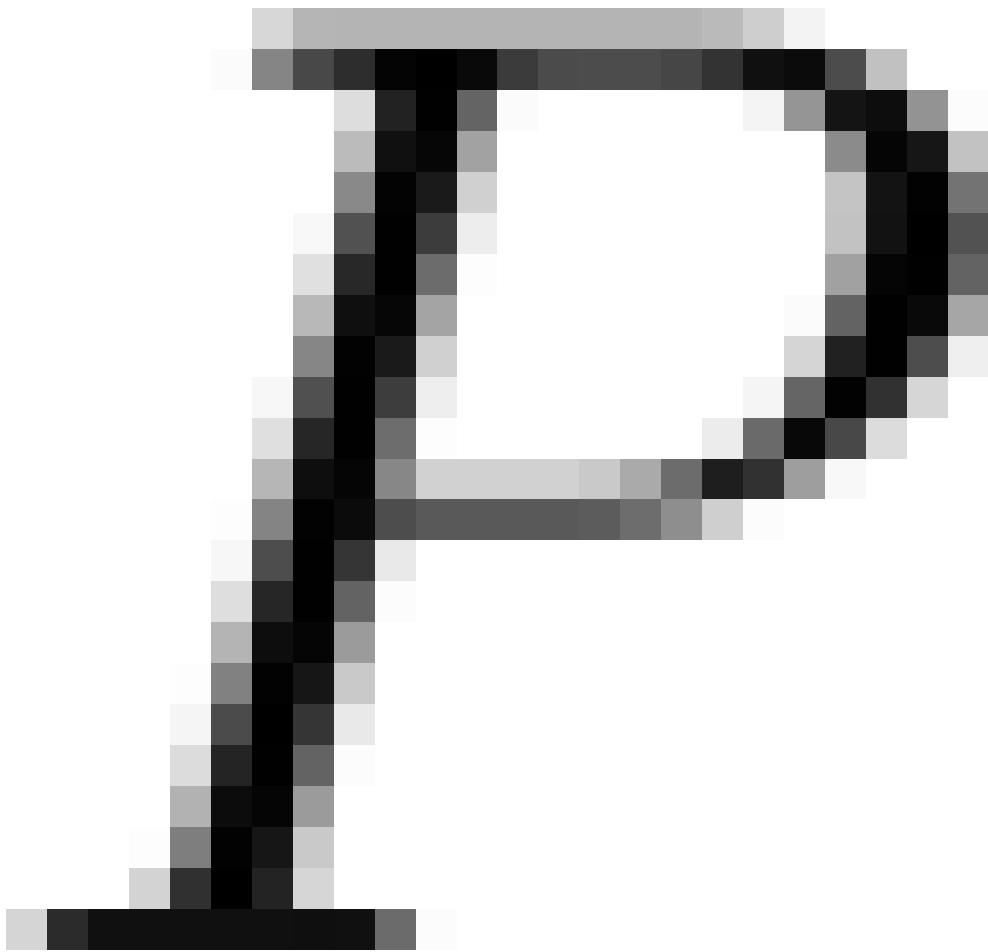


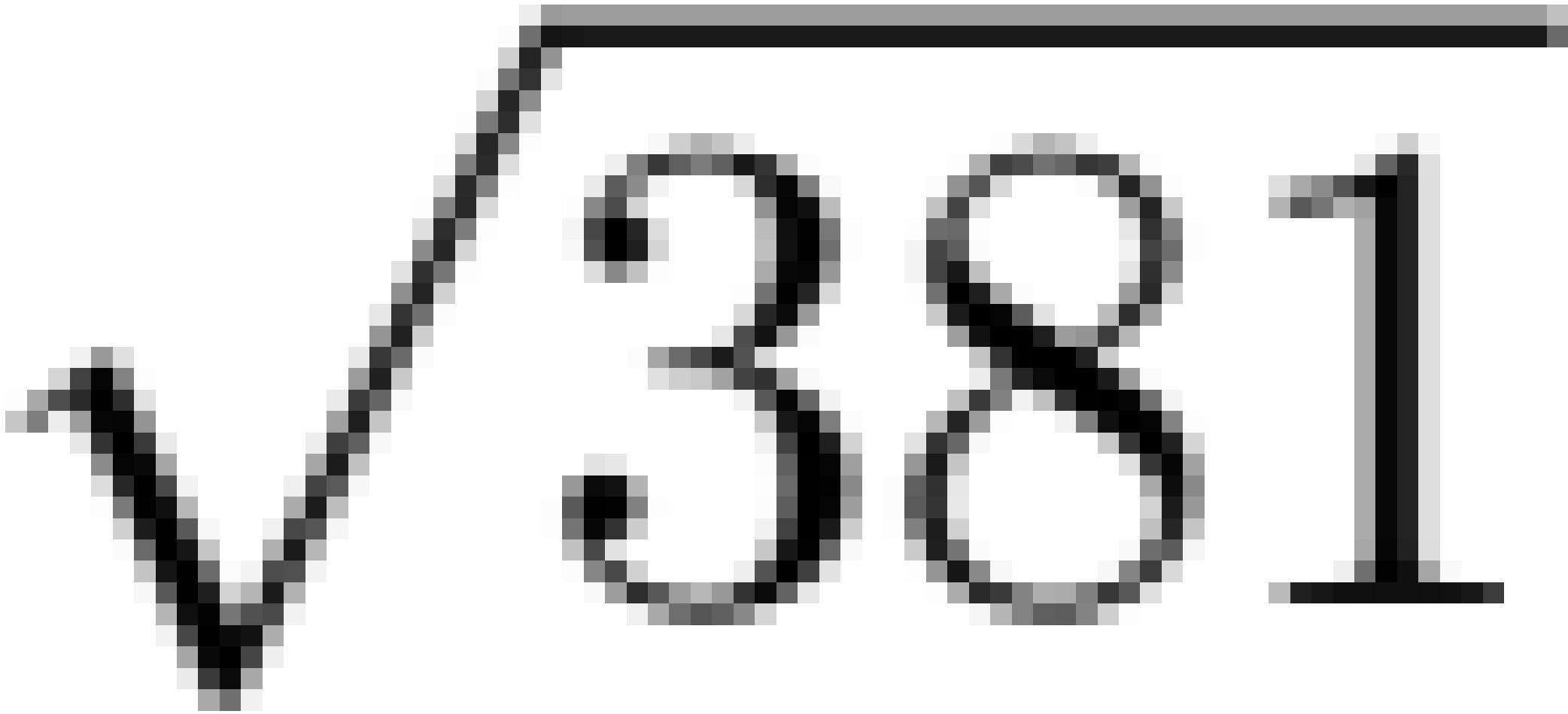


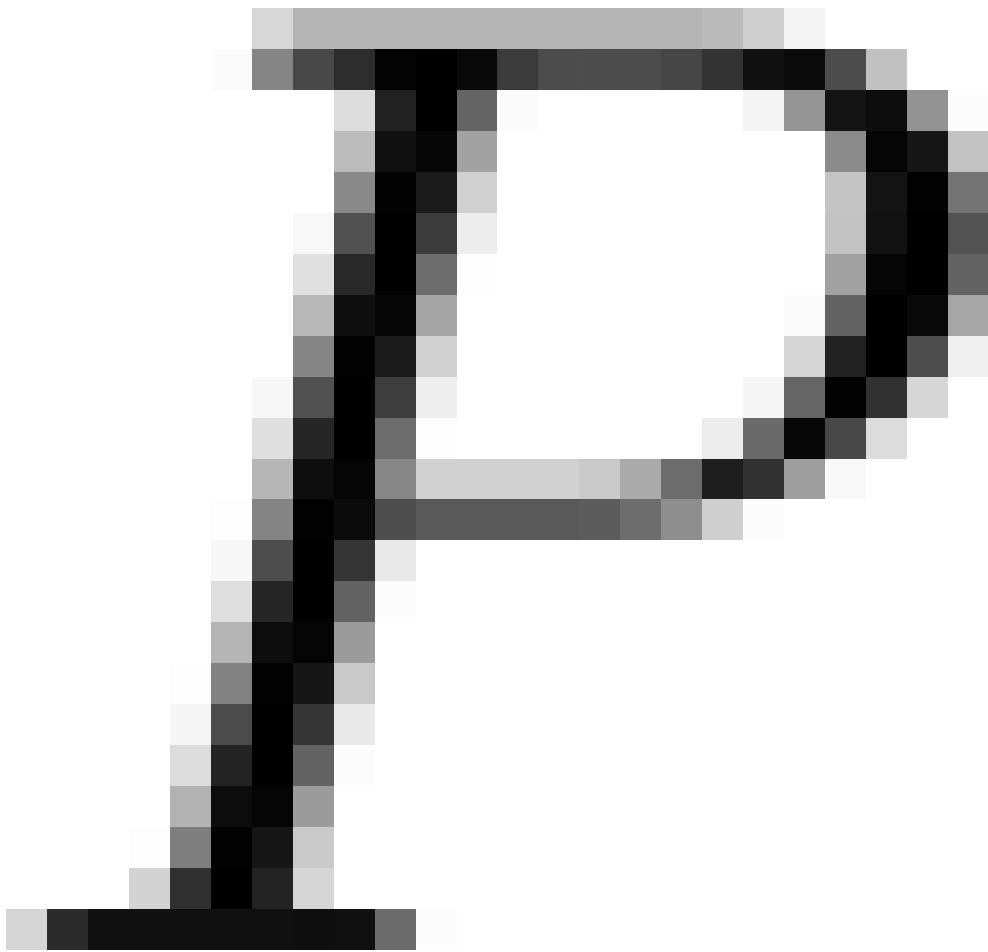
$$d(P, \mathcal{P}) = \frac{|(P - Q) \cdot \vec{V}|}{\|\vec{V}\|}.$$

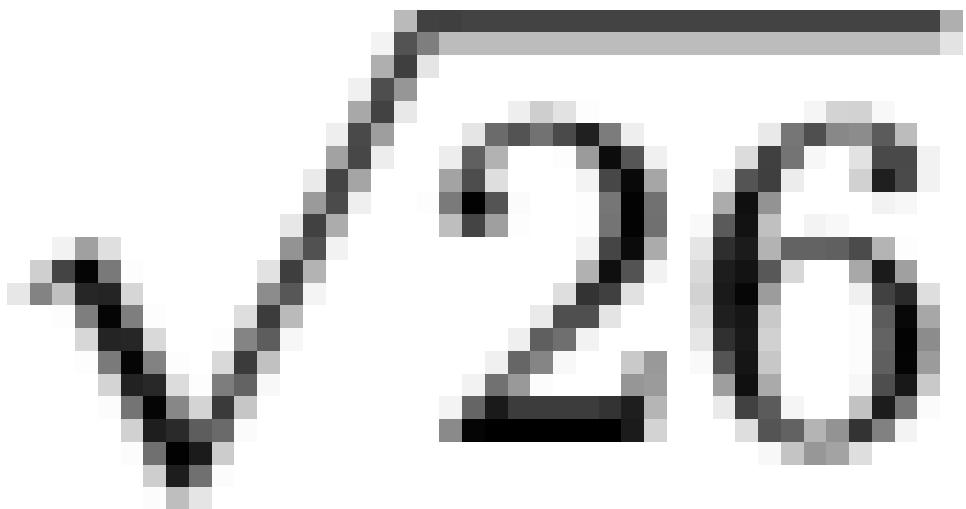
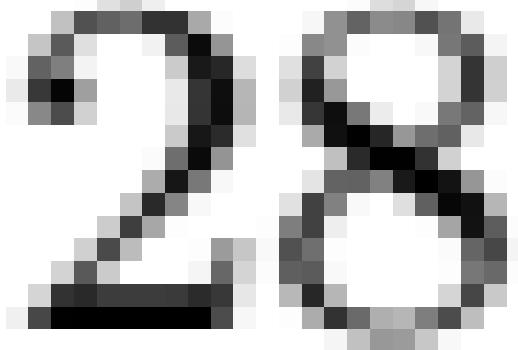
$$\vec{v}_3 = (7, -1, 3) \cdot (4, -1, 3) = 28 + 1 - 57 = -28.$$

$$d(P, \mathcal{P}) = \frac{|-28|}{\sqrt{26}} = \frac{28}{\sqrt{26}}.$$











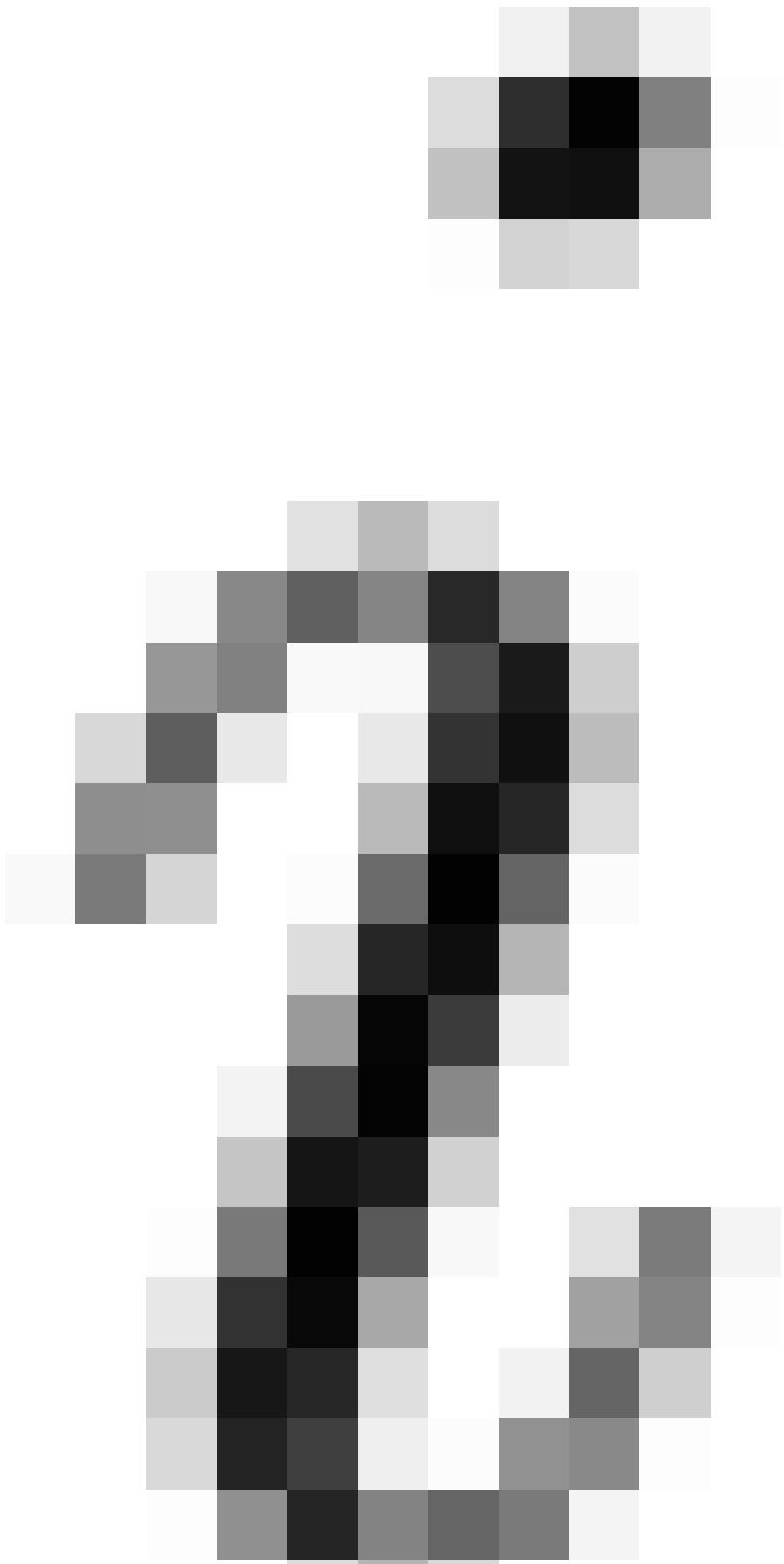
$$\vec{a}^1 = \frac{\vec{a}_2 \times \vec{a}_3}{\vec{a}_1 \cdot \vec{a}_2 \times \vec{a}_3},$$

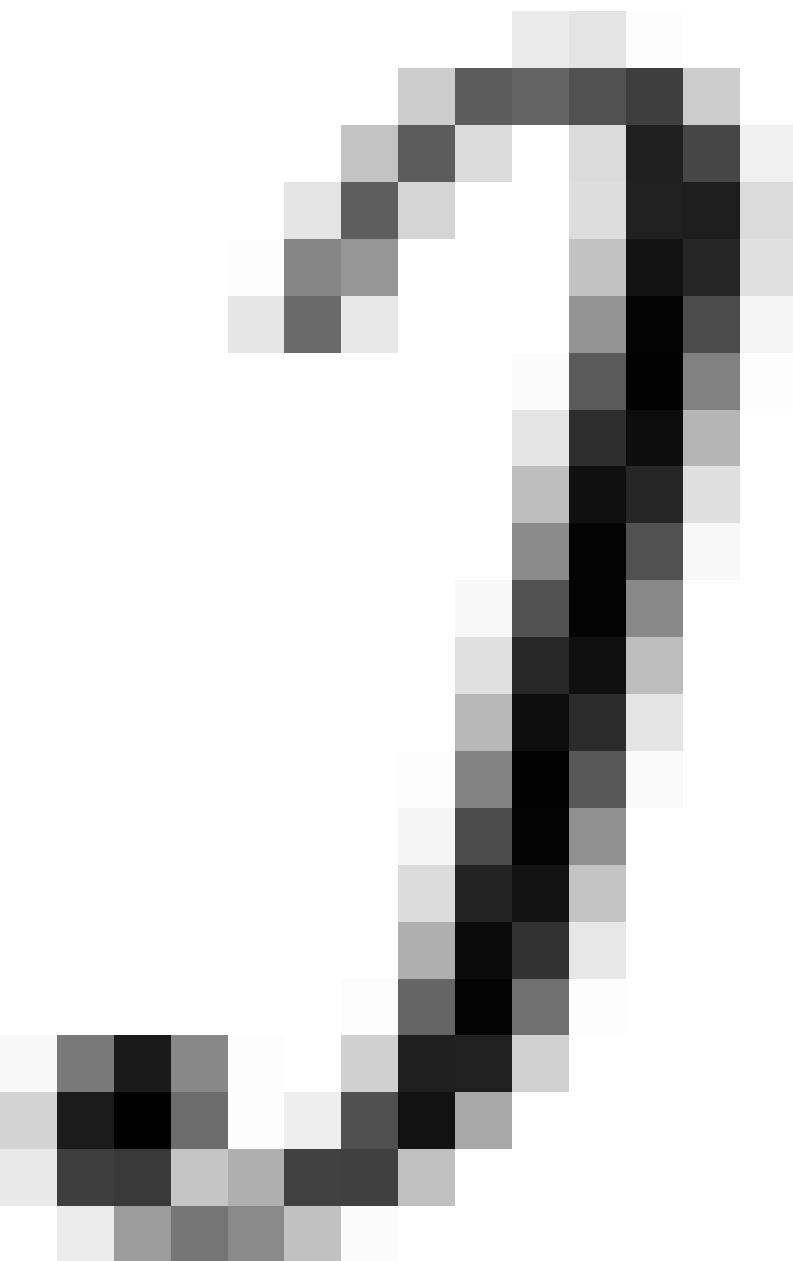
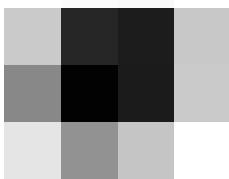
$$\vec{a}^2 = \frac{\vec{a}_3 \times \vec{a}_1}{\vec{a}_1 \cdot \vec{a}_2 \times \vec{a}_3},$$

$$\vec{a}^3 = \frac{\vec{a}_1 \times \vec{a}_2}{\vec{a}_1 \cdot \vec{a}_2 \times \vec{a}_3}$$





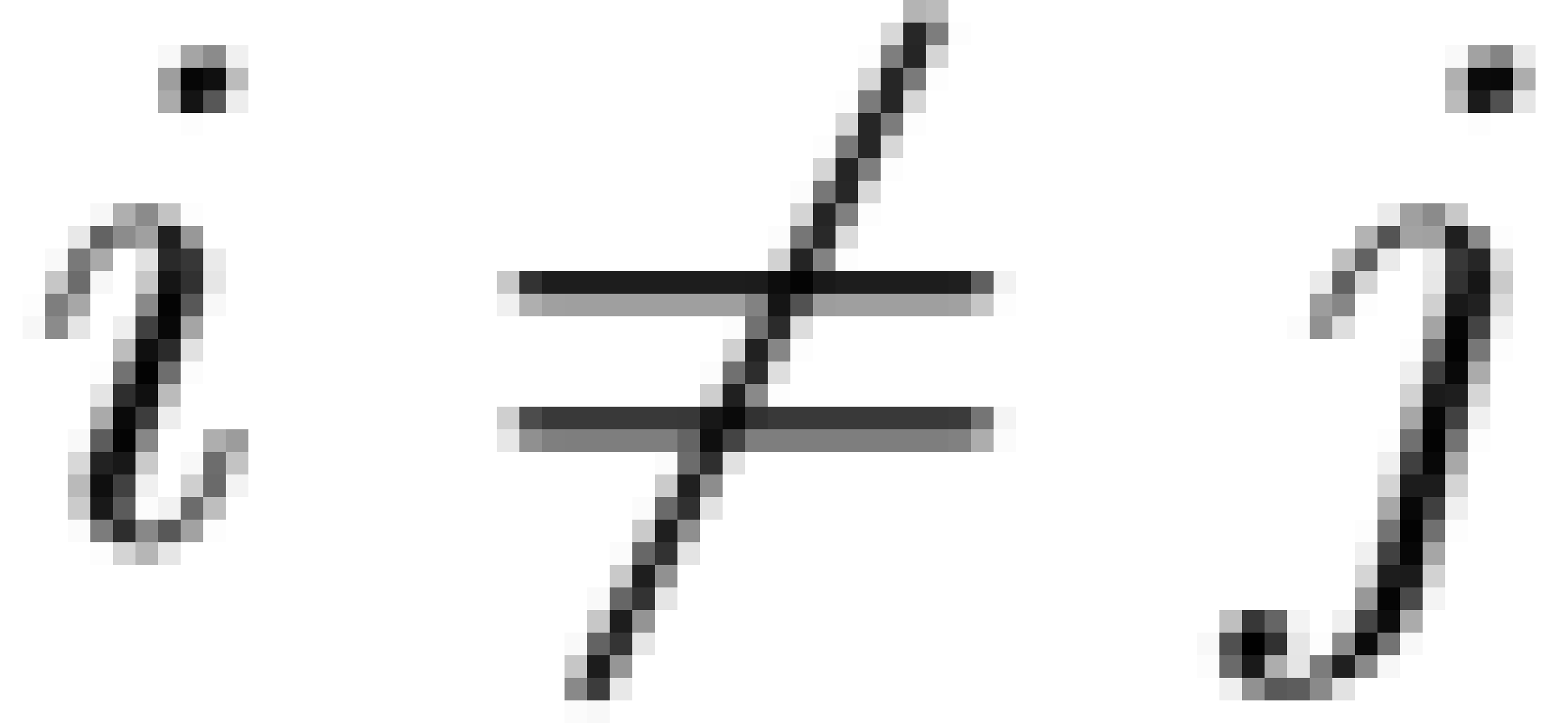














$$\vec{a}_1 \cdot \vec{a}_1 = \frac{(\vec{a}_2 \times \vec{a}_3) \cdot \vec{a}_1}{\vec{a}_1 \cdot (\vec{a}_2 \times \vec{a}_3)}$$

$$\vec{a}^1 \cdot \vec{a}_1 =$$

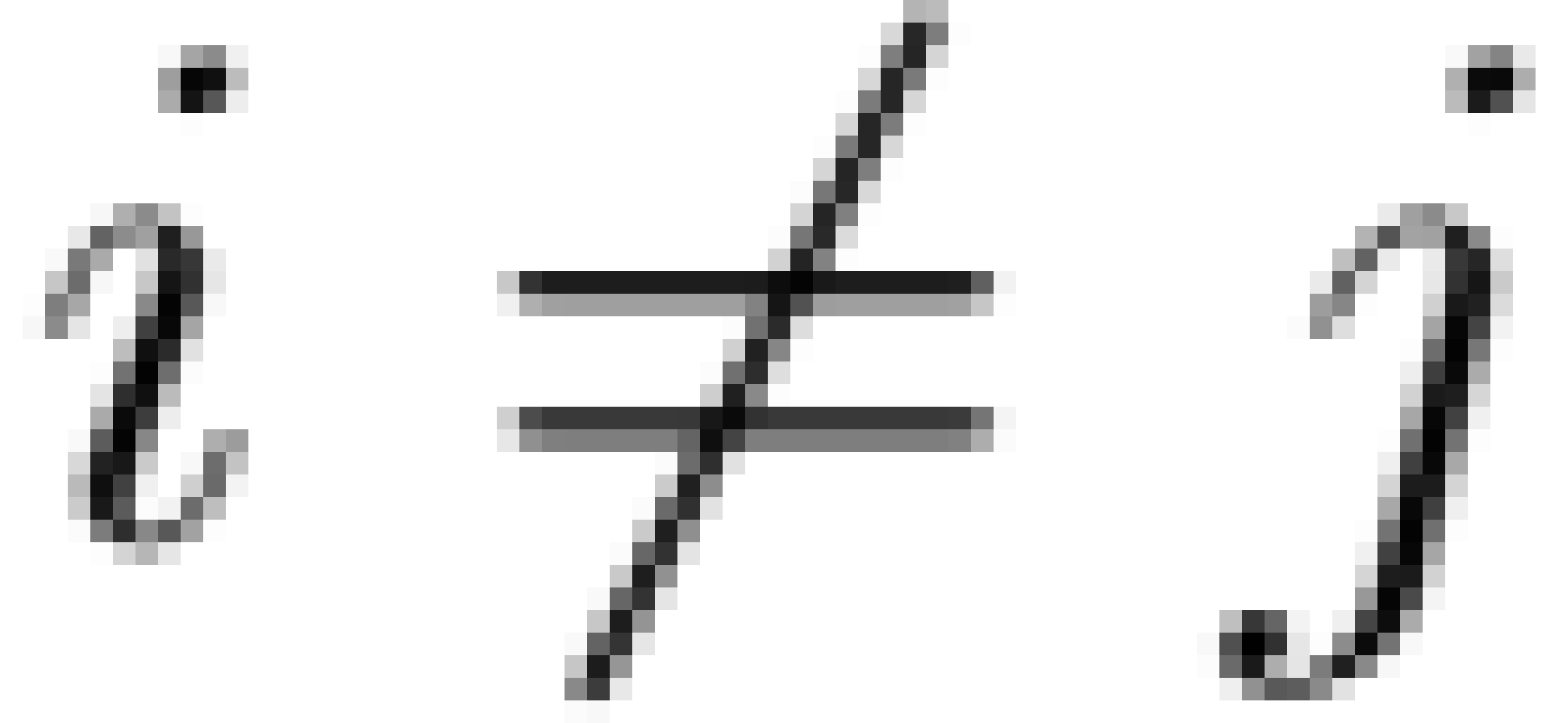
$$\vec{a}_1 \cdot \vec{a}_1 = \frac{\vec{a}_1 \cdot (\vec{a}_2 \times \vec{a}_3)}{\vec{a}_1 \cdot (\vec{a}_2 \times \vec{a}_3)}.$$

$$\vec{a}^1 \cdot \vec{a}_1 =$$

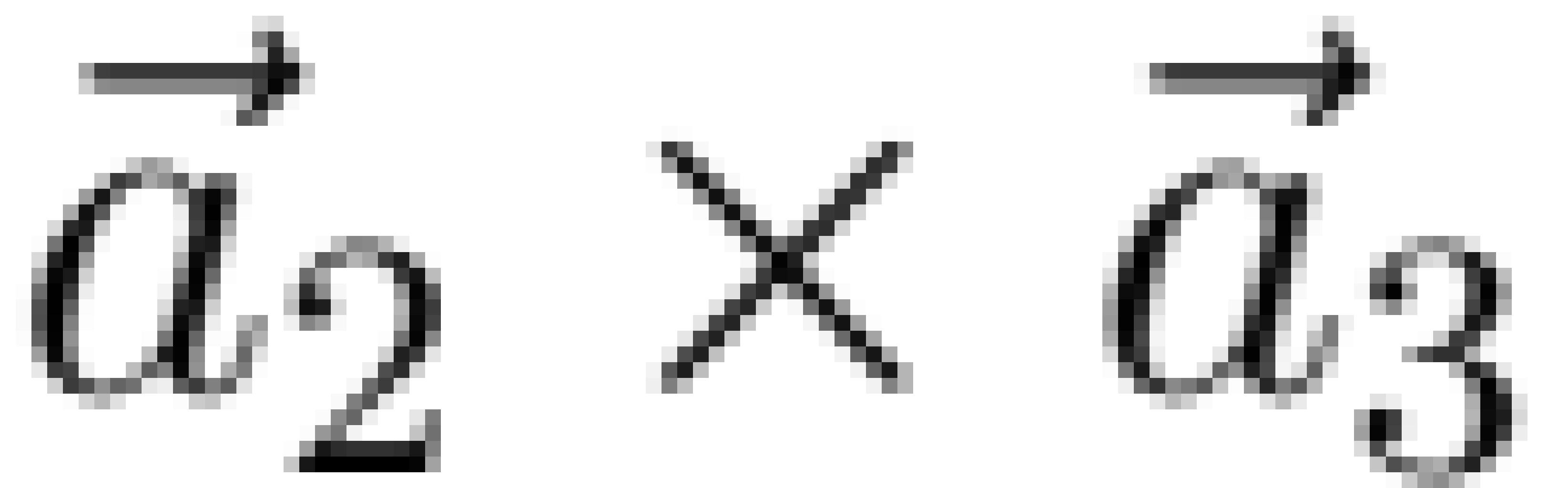
$$\vec{a}^1 \cdot \vec{a}_1 = 1$$

$$\vec{a}^3 \cdot \vec{a}_2 = 1,$$

$$\vec{a}^2 \cdot \vec{a}_3 = 1;$$



$$\vec{a}_1 \cdot \vec{a}_2 = \frac{(\vec{a}_2 \times \vec{a}_3) \cdot \vec{a}_2}{\vec{a}_1 \cdot (\vec{a}_2 \times \vec{a}_3)}.$$





$$(\vec{a}_2 \times \vec{a}_3) \cdot \vec{a}_2 = 0.$$

$$\vec{a}_2 \times \vec{a}_3 =$$

$$\vec{c}^1 \cdot \vec{c}^2 = 0.$$

$$\vec{a}^1 \cdot \vec{a}_3 = 0, \quad \vec{a}^2 \cdot \vec{a}_1 = 0, \quad \vec{a}^2 \cdot \vec{a}_2 = 0.$$