

$$2x + y + z = 9$$

$$x - 2y = 4$$

$$2y + 3z = 1$$

$$\begin{array}{ccc|ccc} 2 & 1 & 1 & 2 & 1 & \\ 1 & -2 & 0 & 1 & -2 & \\ 0 & 2 & 3 & 0 & 2 & \end{array}$$

$$= (-2 + 0 + 2) - (0 + 0 + 3) = -13$$

$$\begin{array}{ccc|ccc} 4 & 1 & 1 & 4 & 1 & \\ 4 & -2 & 0 & 4 & -2 & \\ 1 & 2 & 3 & 1 & 2 & \end{array}$$

$$= (24 + 8) - (7 - 2) = 27$$

1. 1.5

$$A(2, -1) \quad B(-1, 1)$$

$$c) \frac{x-2}{-3} = \frac{y+1}{-1}$$

$$a) \vec{s} = \vec{AB} = [-3, -1]$$

$$\vec{m} = \begin{bmatrix} 2 \\ -1 \end{bmatrix} + \begin{bmatrix} -1 \\ 1 \end{bmatrix} = \begin{bmatrix} 2-t \\ -1+t \end{bmatrix} = \begin{bmatrix} 2-3t \\ -1-t \end{bmatrix}$$

2. 1.5

$$b) R=3 \quad T(1, -1)$$

$$\vec{r} = \begin{bmatrix} R \cos t \\ R \sin t \end{bmatrix}, \quad t \in [0, 2\pi)$$

$$\vec{r} = \begin{bmatrix} 3 \cos t \\ 3 \sin t \end{bmatrix}$$

$$\vec{m} = \begin{bmatrix} 1 + 3 \cos t \\ -1 + 3 \sin t \end{bmatrix}$$

2.

3. 0.5 grade

$$\vec{r} = \begin{bmatrix} 1 + \sqrt{3}t \\ -1 + t \end{bmatrix}$$

$$R = \begin{bmatrix} \cos(30^\circ) & -\sin(30^\circ) \\ \sin(30^\circ) & \cos(30^\circ) \end{bmatrix} \cdot \begin{bmatrix} 1 + \sqrt{3}t \\ -1 + t \end{bmatrix}$$

$$\begin{bmatrix} 3.37t \\ 3.10t \end{bmatrix}$$

4. 1.5 grade

$$y = x^3$$

$$\begin{bmatrix} x \\ x^3 \end{bmatrix}$$

$$k = -2$$

$$\begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} x \\ x^3 \end{bmatrix} = \begin{bmatrix} 2x \\ x^3 \end{bmatrix}$$

5. 1.5 grade

$$A(1, -1, 2) \quad B(2, 0, 0) \quad C(0, -2, 1)$$

$$\vec{r} = \vec{r}_A + s_1 \cdot \vec{v}_1 + s_2 \cdot \vec{v}_2$$

$$\vec{r}_A = \begin{bmatrix} 1 \\ -1 \\ 2 \end{bmatrix}$$

$$\vec{r} = \begin{bmatrix} 1 \\ -1 \\ 2 \end{bmatrix} + u \cdot \begin{bmatrix} 1 \\ 1 \\ -2 \end{bmatrix} + v \cdot \begin{bmatrix} -1 \\ -1 \\ -1 \end{bmatrix}$$

$$\vec{s}_1 = \begin{bmatrix} 1 \\ 1 \\ -2 \end{bmatrix} = \vec{AB}$$

$$\vec{r} = \begin{bmatrix} 1+u-v \\ -1+u-v \\ 2-u-v \end{bmatrix}$$

$$\vec{s}_2 = \vec{AC} = \begin{bmatrix} -1 \\ -1 \\ -1 \end{bmatrix}$$

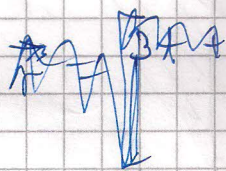
6. 1. led

$$\begin{aligned} x - 2y - z + 3 &= 0 \\ -x + y + 2z - 1 &= 0 \end{aligned}$$

$$\begin{aligned} x - 2y - z &= -3 \\ -x + y + 2z &= 1 \end{aligned}$$

$$\left[\begin{array}{ccc|c} 1 & -2 & -1 & -3 \\ -1 & 1 & 2 & 1 \end{array} \right] \begin{array}{l} / \cdot 1 \\ \leftarrow \end{array} \left[\begin{array}{ccc|c} 1 & -2 & -1 & -3 \\ 0 & -1 & 1 & -2 \end{array} \right] /: (-1)$$

$$\left[\begin{array}{ccc|c} 1 & -2 & -1 & -3 \\ 0 & 1 & -1 & 2 \end{array} \right] \begin{array}{l} \leftarrow \\ / \cdot 2 \end{array} \left[\begin{array}{ccc|c} 1 & 0 & -3 & 1 \\ 0 & 1 & -1 & 2 \end{array} \right]$$



$$\vec{r} = \begin{bmatrix} 1 + 3t \\ 2 + t \\ t \end{bmatrix}$$

$$x - 3z = 1$$

$$x = 3z + 1$$

$$y - z = 2$$

$$y = z + 2$$

$$z = -2 + y$$

$$\boxed{z = t}$$

7. 0 Achsen

$$\vec{n} = \begin{bmatrix} 1 - t \\ -1 - t \\ 2t \end{bmatrix}$$

$$-x + 2y - z + 2 = 0$$

$$T_1(0, 0, 2)$$

8. 1,5 Achsen

$$x - 2y - z + 3 = 0$$

$$x - 2y - z - 2 = 0$$

$$P(0, 0, -2)$$

$$d = \frac{|1 \cdot 0 + (-2) \cdot 0 + (-1) \cdot (-2) + 3|}{\sqrt{1^2 + (-2)^2 + (-1)^2}}$$

$$d = \frac{|5|}{\sqrt{6}}$$

$$\boxed{d = 2.04}$$

3. Ogledni (postupni razpisovanje)

$$\vec{r} = \begin{bmatrix} 1 + \sqrt{3}t \\ -1 + t \end{bmatrix}$$

$$R = \begin{bmatrix} \cos(30^\circ) & -\sin(30^\circ) \\ \sin(30^\circ) & \cos(30^\circ) \end{bmatrix} \cdot \begin{bmatrix} 1 + \sqrt{3}t \\ -1 + t \end{bmatrix}$$

~~$$\vec{r} = \begin{bmatrix} 2.80t \\ 1.37t \end{bmatrix}$$~~



$$\sin(30^\circ) \cdot (1 + \sqrt{3}t)$$

$$0.5 + 0.87t$$

$$-0.87 + 0.87t$$

$$\cos(30^\circ) \cdot (-1 + t)$$

~~$$0.87 + 1.5t + 0.5 - 0.5t$$~~

$$- \sin(30^\circ) \cdot (-1 + t)$$

$$\begin{bmatrix} 1.37 + t \\ -0.37 + 1.77t \end{bmatrix}$$

