

$$h = |\overline{PC}| = \sqrt{(-2)^2 + 2^2 + (-6)^2} = \sqrt{44} = \sqrt{4 \cdot 11} = 2\sqrt{11}$$

Flächeninhalt:  $V = \frac{1}{3} A_{\square} \cdot h = \frac{1}{3} \cdot 6\sqrt{11} \cdot 2\sqrt{11} = 4 \cdot 11 = \underline{44}$

11.13

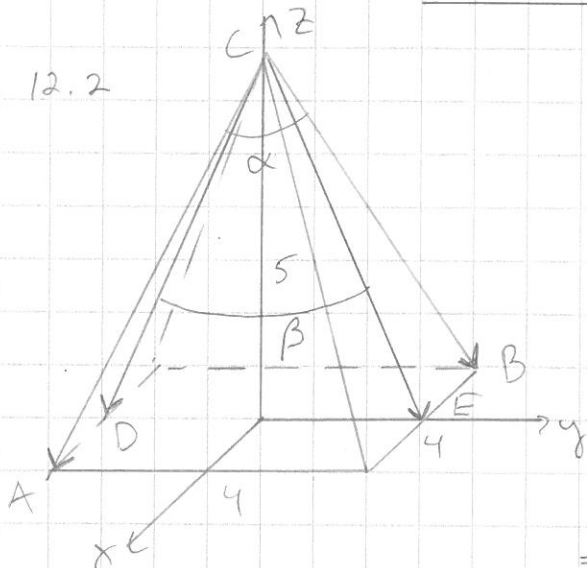
$2x + y - 5z - 1 = 0$   
 $\vec{m} = 2\vec{i} + \vec{j} - 5\vec{k}$   
 $A = (0, 1, 0)$  on Ebene  $T_1$

$2x + y - 5z + 7 = 0$   
 $\overline{AB} \parallel \vec{m} \Leftrightarrow \overline{AB} = t\vec{m} = 2t\vec{i} + t\vec{j} - 5t\vec{k}$   
 $\Rightarrow B = (0 + 2t, 1 + t, 0 - 5t)$

$B$  on Ebene  $T_2 \Rightarrow 2 \cdot 2t + (1 + t) - 5(-5t) + 7 = 0$   
 $\Rightarrow 30t + 72 = 0$   
 $\Rightarrow t = -\frac{72}{30} = -\frac{12}{5}$

$\Rightarrow \overline{AB} = -\frac{24}{5}\vec{i} - \frac{12}{5}\vec{j} + 12\vec{k}$   
 $d = |\overline{AB}| = \sqrt{\left(-\frac{24}{5}\right)^2 + \left(-\frac{12}{5}\right)^2 + 12^2} = \underline{\underline{\frac{12\sqrt{30}}{5}}}$

## 12. Würfelsystem



a)

$$A = (-2, -2, 0)$$

$$B = (2, 2, 0)$$

$$C = (0, 0, 5)$$

$$\overline{CA} = 2\vec{i} - 2\vec{j} - 5\vec{k}$$

$$\overline{CB} = -2\vec{i} + 2\vec{j} - 5\vec{k}$$

$$\cos(\overline{CA}, \overline{CB}) = \frac{\overline{CA} \cdot \overline{CB}}{|\overline{CA}| |\overline{CB}|} = \frac{2 \cdot (-2) - 2 \cdot 2 - 5 \cdot (-5)}{(\sqrt{2^2 + (-2)^2 + (-5)^2})^2}$$

$$= \frac{12}{33}$$

$$\Rightarrow \alpha = \angle(\overline{CA}, \overline{CB}) \approx 58,592^\circ \approx \underline{59^\circ}$$

b)

$$\overline{CD} = -2\vec{j} - 5\vec{k}$$

$$\overline{CE} = 2\vec{j} - 5\vec{k}$$

$$\cos \beta = \cos(\overline{CD}, \overline{CE}) =$$