

$$59) \vec{AB} = (-1; -2; 2)$$

$$|\vec{AB}| = \sqrt{1+4+4} = 3 \Rightarrow \pm \frac{1}{3} |A| = 1$$

$$\frac{\vec{AB}}{3} = (-\frac{1}{3}; -\frac{2}{3}; \frac{2}{3}) \Rightarrow M_1 = [1-\frac{1}{3}; 4-\frac{2}{3}; 3+\frac{2}{3}]$$

$$\frac{\vec{AB}}{3} = (-\frac{1}{3}; -\frac{2}{3}; \frac{2}{3}) \Rightarrow M_2 = [1+\frac{1}{3}; 4+\frac{2}{3}; 3-\frac{2}{3}]$$

$$61) \vec{BC} = (-4; 4; -4) \sim (1; -1; 1)$$

$$\vec{BC} = \{ [3+k; 6-k; 2+k] \mid k \in \mathbb{R} \}$$

$$x \in K: \rho(x, A) =$$

$$\sqrt{(2+k)^2 + (4-k)^2 + (1-k)^2} =$$

$$= \sqrt{3k^2 - 6k + 21} = \sqrt{3(k-1)^2 + 18}$$

$$\rho(A, \vec{BC}) = \underline{\underline{\sqrt{18}}}$$

$$67) \vec{AB} = (3; -6; -6) \sim (1; -2; -2)$$

$$\vec{BC} = (-2; 7; -2)$$

$$\vec{AB} \times \vec{BC} = (6; 6; -3) \sim (2; 2; -1)$$

$$\vec{A} = [1; 2; 3]$$

$$A[-1; 4; 5] \in \mathcal{P} \Rightarrow -2+8-5+d=0$$

$$\mathcal{P}: -2x+8y-5z=0$$

$$2x+2y-7z-7=0$$

$$Z[0; 0; 1]$$

$$\rho(2; \mathcal{P}) = \frac{|1-2-7|}{\sqrt{4+4+7}} = \frac{|-8|}{3} = \frac{8}{3}$$

$$|A+1| \leq 15$$

$$\underline{\underline{A = -16 \text{ i } A = 14}}$$

$$Z[0; 0; -16]$$

$$Z[0; 0; 14]$$

$$75) \alpha: \alpha \perp \sigma \cap A \in \alpha$$

$$\alpha - x + y + 2z + d = 0$$

$$-2 - 3 + 2 \cdot 6 + d = 0$$

$$\alpha: -x + y + 2z - 7 = 0$$

$$\alpha \cap \mathcal{L}: -(2-1) + (3+1) + 2(2-1) - 7 = 0$$

$$A = [\begin{smallmatrix} 6 & 12 & -6 \\ 2 & -3 & 6 \end{smallmatrix}] = 0 \Rightarrow A = 1$$

$$P = [\begin{smallmatrix} 1 & 1 & 4 \\ 1 & 4 & 4 \end{smallmatrix}]$$

$$A' = [\begin{smallmatrix} 0 & 11 & 2 \end{smallmatrix}]$$

$$85) \vec{LK} = (2; -2; 1)$$

$$\vec{MK} = (-1; 4; 4)$$

$$\vec{LK} \cdot \vec{MK} = -2 - 2 + 4 = 0 \Rightarrow$$

$$\Rightarrow \underline{\underline{LK \perp MK}}$$

$$\vec{LK} = \vec{KM} = (1; -1; -4) \perp$$

$$\vec{L} = (-1; 2; 2)$$

$$\vec{X} = (0; 7; -2)$$

