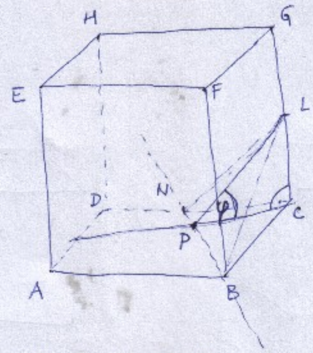
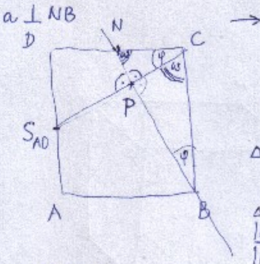
VII.

39 b $\varphi(ABC, BNL)$ $N = S_{CD}$; $L = S_{CG}$



průsečnice $p = NB$

$a \in ABC$; $a \perp NB$ $\rightarrow a = CS_{AD}$



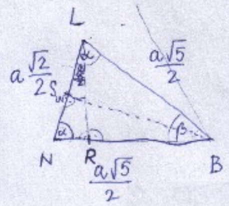
$P = NB \cap CS_{AD}$

$\triangle N\cancel{BC} \sim \triangle CBP$ (uuu)

$\cancel{\#} \sim \triangle NCP$ (uuu)

$\triangle NCP$: $\frac{|NP|}{|NC|} = \frac{|NC|}{|NB|}$ ($\triangle NBC$) $\Rightarrow |NP| = \frac{|NC|^2}{|NB|} = \frac{\frac{a^2}{4}}{\frac{a\sqrt{5}}{2}} =$ $NP = \frac{a\sqrt{5}}{10}$

$b \in NBL$, $b \perp NB$



$R \in NB$; $LR \perp NB$

$\triangle NRL \sim \triangle NS_{NL}B$ (uuu)

$\frac{|NR|}{|NL|} = \frac{|NS_{LN}|}{|NB|}$

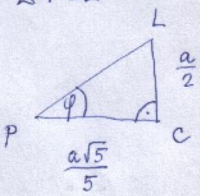
$|NR| = \frac{|NL| \cdot |NS_{LN}|}{|NB|}$

$|NR| = \frac{a\sqrt{2}}{2} \cdot \frac{a\sqrt{2}}{4} \cdot \frac{2}{a\sqrt{5}} = \frac{2a}{4\sqrt{5}} = \frac{a\sqrt{5}}{10}$

Protože $|NP| = |NR|$, $P \in NB$, $R \in NB$, mohu tvrdit, že:

$P = R \Rightarrow a \cap b = P = R$

v $\triangle PCL$



hledám $|PC|$ – 2 způsoby:

1. zp. $\triangle NBC \sim \triangle CBP$

$$\frac{|PC|}{|BC|} = \frac{|NC|}{|NB|}$$

$$|PC| = \frac{|NC|}{|NB|} |BC|$$

$$|PC| = \frac{a}{2} \cdot \frac{2}{a\sqrt{5}} \cdot a = \frac{a\sqrt{5}}{5}$$

2. způsob: přes obsahy $\triangle NCB$

$$S_\triangle = \frac{|NB| \cdot |CP|}{2} = \frac{|NC| \cdot |BC|}{2}$$

$$|CP| = \frac{|NC| \cdot |BC|}{|NB|} = \dots = \frac{a\sqrt{5}}{5}$$

$$\operatorname{tg} \varphi = \frac{\frac{a}{2}}{\frac{a\sqrt{5}}{5}} = \frac{5}{\sqrt{5} \cdot 2} = \frac{5\sqrt{5}}{10} = \frac{\sqrt{5}}{2}$$

$$\varphi = 48° 11' 22'' \doteq \underline{\underline{48° 11'}}$$