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SECTIONS OF QUADRIC SURFACES PIERCING POINTS OF QUADRIC SURFACES BY A LINE

| PROBLEMS |  |  |
| :---: | :---: | :---: |
| 49 | 50 | 51 |
|  |  |  |

The cone's axis is perpendicular to $\pi_{1}$-projection plane, but cutting planes are perpendicular to $\pi_{2}$
parabola
N hyperbola
$\qquad$
49. Determine a plane tangent to the sphere's surface. Point of tangency should be one of two points of intersection of the sphere pierced by the straight line $\mathbf{m}$.


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Cone's axis is perpendicular to $\boldsymbol{\pi}_{\boldsymbol{1}}$-plane
$\varnothing \alpha$ - cutting plane $\alpha \| \pi_{1}$
$\bigcirc \gamma$ - additional plane $\boldsymbol{\gamma}(\mathbf{W}, \mathrm{d})$
$A=\alpha \cap d, \quad B=\alpha \cap f, \quad k_{\alpha \gamma}(A, B)$
$\mathrm{K} \alpha \mathrm{y}=\boldsymbol{\gamma} \cap \boldsymbol{\alpha}, \quad \mathrm{m}=\boldsymbol{\kappa} \cap \boldsymbol{\alpha}, \quad\left\{\mathrm{P}_{1,}, \mathrm{P}_{\mathrm{z}}\right\}=\boldsymbol{\kappa} \cap \mathrm{d}$

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50. Determine points of intersection of the cone's surface pierced by the straight line $\mathbf{d}$.


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51. Find points of intersection of the cylindrical surface pierced by the straight line $\mathbf{m}$.


