Advanced Topics in Geometry A1 (MTH.B405)

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2025/05/23

Q and A

Q: What is the difference between Frenet frame and Gauss frame? Do we have any application example of Gauss frame?

${\sf Q} \mbox{ and } {\sf A}$

Q: Is there a geometric intuition behind the weingarten matrix or is it just an abstract definition?

Q and A

Q: Since the principal curvatures are the curvature of the most curved direction and the Gaussian curvature is the product of the two of them, I think I can get roughly a shape of surface from the sign of Gaussian curvature. On the other hand, I am not sure what the mean curvature geometrically. Is it something that can be intuitively understood?

${\sf Q} \mbox{ and } {\sf A}$

Q: Does the notion $(g^{ij}) = (g_{ij})^{-1}$ mean that g^{ij} is the (i, j)-component of the inverse matrix of the matrix (g_{ij}) ?