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Info. Sheet 6; Advanced Topics in Geometry E (MTH.B501)

Informations

- Twelve homeworks were submitted. The feedback will be found on T2SCHOLA.
- Next week (June 07, 2022) is the final class of MTH.B501. Please fill the form “Course Survey” in T2SCHOLA.

Corrections

- Lecture note, page 24, equation (4.6):

$$R_{jk} := \frac{1}{2}(g_{1k,2j} - g_{1j,2k} + g_{2j,1k} - g_{2k,1j}) - \sum_{i,s} g_{is}(\Gamma_{ks}^s \Gamma_{1j}^i - \Gamma_{k1}^s \Gamma_{2j}^i) \dots$$
$$\Rightarrow R_{jk} := \frac{1}{2}(g_{1k,2j} - g_{1j,2k} + g_{2j,1k} - g_{2k,1j}) - \sum_{i,s} g_{is}(\Gamma_{k2}^s \Gamma_{1j}^i - \Gamma_{k1}^s \Gamma_{2j}^i) \dots$$

- Lecture note, page 24, line 14:

$$I_j^3 = h_{1j,2} - h_{2j,1} - \sum_l (\Gamma_{ik}^l h_{lj} - \Gamma_{jk}^l h_{il}) \Rightarrow I_j^3 = h_{1j,2} - h_{2j,1} - \sum_l (\Gamma_{2j}^l h_{l1} - \Gamma_{1j}^l h_{l2})$$

- Lecture note, page 24, lines 18–22 (5 times):

$$\sum_{l,s} g^{ls} (h_{2s} \Gamma_{1l}^j - h_{1s} \Gamma_{2l}^j) \Rightarrow \sum_{l,s} g^{ls} (h_{2s} \Gamma_{1l}^j - h_{1s} \Gamma_{2l}^j)$$

- Lecture note, page 27, equation (5.3):

$$\Gamma_{ij}^k = \frac{1}{2} \sum_{l=1}^2 g^{kl} (g_{lj,k} + g_{il,j} - g_{jl,k}), \quad A_j^i = \sum_{l=1}^2 g_{jl} h_{il}$$
$$\Rightarrow \Gamma_{ij}^k = \frac{1}{2} \sum_{l=1}^2 g^{kl} (g_{kj,i} + g_{ik,j} - g_{ij,k}), \quad A_j^i = \sum_{l=1}^2 g^{il} h_{lj}$$

- Lecture note, page 27, line -10: p and \tilde{p} be a regular surface $\Rightarrow p$ and \tilde{p} be regular surfaces
- Lecture note, page 27, line -4: \mathcal{F} and $\tilde{\mathcal{F}}$ satisfies $\Rightarrow \mathcal{F}$ and $\tilde{\mathcal{F}}$ satisfy
- Lecture note, page 27, line -4: (??) \Rightarrow (3.17)
- Lecture note, page 28, line 2: Moreover, p and \tilde{p} share \Rightarrow Moreover, since p and \tilde{p} share
- Lecture note, page 28, line 13: γ_{11} $\Rightarrow \gamma_{11}$
- Lecture note, page 29, line -7: with same \Rightarrow with the same

Students' comments

- 今回解いた問題、計算がしんどかったです。

Lecturer's comment そうかも。大体の部分はここまでの練習問題で終わっているはずなのですが。

- 山田先生が数学をやるときのどあめをなめるとおっしゃっていたので、最近毎日食べているのですが、先生は何が好きですか。 **Lecturer's comment** 龍角散
- 面白い質問が思いつかない。 **Lecturer's comment** 残念
- (3) で右辺は $-\frac{1}{2} \sinh(2\sigma)$ になりますが、左辺が $-\frac{1}{2} \sinh(2\sigma)$ 以外にも現れて一致しませんでした。 **Lecturer's comment** (3) とは？

