- A LaTeX file compiling with errors will not be graded
- Submit the pdf and LaTeX versions inside an archive of type tar, zip, or rar
- Add any referenced article to the archive
- Follow the group submission guidelines
- Any work that fails to comply with the previous requirements will be ignored

Ex. 1 — *Writing mathematics*
Typeset the following paragraph from Spivak [2]. Detail the intermediate missing steps.

As a final example, consider the triple compositions

$$f(x) = \int_a^{x^3\left(\int_a^{x^3}\frac{1}{1+\sin^2 t}\,dt\right)} \frac{1}{1+\sin^2 t}\,dt, \qquad g(x) = \int_a^{\left[\dfrac{\left(\int_a^x \frac{1}{1+\sin^2 t}\,dt\right)}{\int_a^{\frac{1}{1+\sin^2 t}}\,dt}\right]} \frac{1}{1+\sin^2 t}\,dt,$$

which can be written

$$f = F \circ F \circ C \quad \text{and} \quad g = F \circ F \circ F.$$

Omitting the intermediate steps (which you may supply, if you still feel insecure), we obtain

$$f'(x) = \frac{1}{1+\sin^2\left(\int_a^{x^3}\frac{1}{1+\sin^2 t}\,dt\right)} \cdot \frac{1}{1+\sin^2 x^3} \cdot 3x^2,$$

$$g'(x) = \frac{1}{1+\sin^2\left[\int_a^{\left(\int_a^x \frac{1}{1+\sin^2 t}\,dt\right)} \frac{1}{1+\sin^2 t}\,dt\right]} \cdot \frac{1}{1+\sin^2\left(\int_a^x \frac{1}{1+\sin^2 t}\,dt\right)} \cdot \frac{1}{1+\sin^2 x}.$$

Ex. 2 — *LaTeX*
Do all the exercises from section 1 in Chapter 9.

Ex. 3 — *Group exercise*
Read the article "How to write Mathematics" [1], summarize, and discuss the key ideas from assigned sections. Group numbers are to be counted from top to bottom, left to right.

Group 1: 0 − 3;   Group 4: 7, 8 ;   Group 7: 15, 20;
Group 2: 4, 14, 19;   Group 5: 9, 10;   Group 8: 16 − 18;
Group 3: 5, 6;   Group 6: 11 − 13;

Ex. 4 — *Grammar*

1. What are the plurals of the following words:

   (a) means
   (b) paralysis
   (c) curriculum
   (d) oasis

   (e) offspring
   (f) criterion
   (g) Chinese
   (h) antenna

   (i) stimulus
   (j) fungus
   (k) alumnus
   (l) series

   (m) diagnosis
   (n) vita
   (o) American
   (p) synopsis

2. Fill in the blanks with *a/an, the* or nothing:

   (a) _____ Decline and Fall of _____ Roman Empire

   (b) _____ complexity of _____ problem of _____ decline and fall of the Roman Empire is made evident by _____ wide variety of causes that are emphasized in varying degrees by _____ different authors.

   (c) Fortunately, _____ concise formulation of Edward Gibbon serves as _____ widely accepted basis for _____ modern discussion of _____ problem.

   (d) According to Gibbon, _____ empire reached its peak during _____ administration of _____ two Antonines.

   (e) After that, however, _____ extent of _____ Roman conquest became too great to be managed by _____ Roman government, and _____ decline began.

   (f) _____ military government was weakened and finally dissolved as _____ barbarians were allowed to constitute _____ ever-growing percentage of _____ Roman legions.

   (g) _____ victorious legions began to dominate and corrupt _____ government, weakening it at _____ time when it most needed _____ strength to overcome _____ other problems.

References

[1] P. R. Halmos. How to write mathematics. *Enseignement mathémathique*, 16:123–152, 1970.

[2] M. Spivak. *Calculus*. Publish or Perish, 2008.

Groups

Group 1
cui zhiming 崔志铭 (17370910006)
chen 陈燚 (17370910015)
feng fei 冯飞 (17370910009)
Yao Liu 刘耀 (118370910024)

Group 2
Yu Cang 仓宇 (18370210001)
Shuixin Xiao 肖水鑫 (18370910023)
Yijie Wang 王毅杰 (18370910021)
Yaoxia Shao 邵谣夏 (18370910022)

Group 3
Xuan Wang 王璇 (18370910020)
Kuncai Zhong 钟坤材 (18370910015)
Rui Gao 高睿 (118370910003)
Ronghan Chen 陈荣汉 (118370910001)

Group 4
Da He 何达 (18370910014)
Ping Li 李坪 (18370910003)
Xin Luo 罗鑫 (118370910018)

Group 5
Chang Meng 孟畅 (118370910019)
Reze Rouhi Ardeshiri (18370990002)
Xinyi Wang 王馨怡 (118370910007)
liu mengqi 刘梦奇 (17370910008)

Group 6
Yao Chen 陈耀 (18370910016)
wei 魏晗 (17370910012)
su nianxiaobing 苏年小兵 (117370910018)
Yibo Zhao 赵一博 (118370910011)

Group 7
Xuqing Zhou 周旭卿 (118370910023)
zhou xiaochen 周晓晨 (17370910017)
Yi Ran 衣然 (18370210003)
Huijia Shen 沈慧佳 (118370910004)

Group 8
kang ning 康宁 (17370910016)
Muhammad Umer Siddique (118370990001)
Guiwen Tan 谭贵文 (118370910014)