

## THE UNTRAINED MATHEMATICIAN

### **Exercises (Must be done in the fair copy)**

**I. Write the difficult words and their meanings from the book**

**II. Tick the most appropriate options.**

1. Ramanujan impressed his maths teachers and bewildered his classmates because  
**Ans.** He worked out maths problems skipping most of the steps.
2. Young Ramanujan's interest in maths was a problem in school and college because  
**Ans.** He did not concentrate on other subjects and failed in exams.
3. In his letter to Ramanujan, Hardy  
**Ans.** Conveys praise.
4. When Hardy went through Ramanujan's letter and mathematical papers, he  
**Ans.** was quite excited by Ramanujan's genius.

**III. Answer the following questions:**

1. *He did not offer any proof for his theorems, perhaps because he saw no need for them.*
  - a. Which theorems are referred here?  
**Ans.** The theorems in Ramanujan's first paper, published in the *Journal of the Indian mathematical society* in 1911.
  - b. Did Ramanujan not see any need for proof because the conclusions were obvious to him or because he did not know the steps?  
**Ans.** Ramanujan did not see any need for proof because the conclusions were obvious to him.
2. *..... You will not be able to follow my methods..... I didn't mean that the methods should be buried with me.*
  - a. What method is Ramanujan speaking of?  
**Ans.** Ramanujan is speaking of the methods that are used to get at his mathematical conclusions.
  - b. Who would not be able to follow his methods?  
**Ans.** G H Hardy would not be able to follow his methods.
  - c. Were his methods confusing?  
**Ans.** Ramanujan's methods were not confusing but he did not demonstrate all the steps.
3. Why does Hardy express his reservations about Ramanujan's work initially?

**Ans.** After a casual look at Ramanujan's theorems, Hardy first dismissed them as strange because the results were very unusual and they were not accompanied by detailed steps.

4. What do Ramanujan's and Hardy's letters tell us about their attitude to each other?

**Ans.** Ramanujan held Hardy in very high respect and valued his opinion. In his letter, Ramanujan is very polite and respectful to Hardy. Even though initially Hardy was suspicious of Ramanujan's work later, he was very impressed by Ramanujan. He writes so in his letter and requests Ramanujan to submit proofs of his mathematical statements. In his letter, Hardy is polite, firm and respectful.

5. How did Hardy help discover and nurture Ramanujan's genius?

**Ans.** Hardy was fascinated by Ramanujan's work and accepted him as brilliant. He requested Ramanujan to send him detailed proofs of his mathematical conclusions so that he could evaluate him properly. He spoke about Ramanujan to his friends and also got others to look at Ramanujan's work. He arranged for Ramanujan to join Cambridge, even getting his friend to accompany him on the journey. Over the years, both of them collaborated on several projects.