

MONT 106Q – Mathematical Thinking  
Study/Discussion Questions on *Flatland*<sup>1</sup>  
December, 2016

*Some specific questions about the events recounted in Flatland – Part I*

1. What appearance do Flatlanders present to one another? Are there shadows in Flatland? What is the maximum length or breadth of an inhabitant of Flatland? What does the number of sides of a polygon represent? Why is the aristocracy pleased when an Equilateral emerges from his serfborn ancestors? What happens to such offspring?
3. Why have all previous rebellions by the isosceles triangles failed? Is there “Darwinian evolution” in Flatland? What “ordinance of nature” keeps the superior numbers of isosceles triangles from overcoming the circles?
4. The portrayal of the women in Flatland is the aspect of this book that probably has the most potential to infuriate readers in 2016. Does Abbott have a purpose in this or is he just a prejudiced man? What is the appearance of a Flatland woman viewed “end-on?” A Flatland female isn’t actually a line segment. What is she? What is the danger in colliding with women? How is this danger minimized? Describe the laws governing women. Why don’t women object to their status in Flatland?
5. What properties do residents of three-dimensional space have to help them discern shapes and configurations? How do Flatlanders recognize one another? Why is recognition by voice not reliable? Explain the process of sight recognition. Why is feeling discouraged by the upper classes? What happens to members of the polygonal class who fail the “Leaving Examination” at the University?
6. What does “irregularity” represent? Why is irregularity “incompatible with the safety of the state?” What does the Square propose be done with irregular figures? How is the entire social system dependent on regularity?
7. *A mathematical question:* Nonsquare rectangles have equal angles but not equal sides. Non-square rhombi have equal sides but not equal angles. Can you make a pentagon with all sides equal but not all angles equal? Can you make a pentagon with all angles equal but not all sides equal? What about the same questions for hexagons and polygons with higher numbers of sides?
8. Who was Chromatistes? How did color change life in Flatland? Who remained colorless? Why? What problems did color bring to Flatland? Whose idea was the painting of women and priests? How was it proposed that women and priests be painted? Why was this a proposal “of no little cunning?” Who was Pantocyclus? Why did the Color Revolt fail? For what purpose is the use of color still permitted?
9. Who are the “priests?” What is their shape? What is the average perimeter of a priest? What is the Circular Neo-Therapeutic Gymnasium? How many sides does the Chief Circle have? Explain the adage, “Configuration makes the man.”

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<sup>1</sup> Many of these questions are adapted from a study guide developed by Thomas Banchoff at Brown University. He also credits Hester Lewellen and Pam McKee of Baldwin Wallace College.

10. What is meant by “nature versus nurture?” Do you think the societal order in Flatland described by the Square puts a higher emphasis on one or the other of these influences? How does the Square feel about this fact?

### *Part II – Visions of Different Dimensions*

11. What are the characteristics of Lineland that the Square sees in his vision? How did the Square try to explain the nature of Flatland? What was the result? What troubling question did the Square’s grandson ask? Describe the figure from Spaceland that appeared to the Square and his wife. Suppose that the visitor had been a cube rather than a sphere. How would he have appeared to the Square? How does the Sphere try to explain the “third dimension?” What does the Sphere say that shows that he is a “supernatural being?” What demonstration does the Sphere give to try to convince the Square that he is not simply a circle? How does the Square respond to the Sphere’s efforts?
12. What does the Sphere do to demonstrate the existence of a third dimension? Why does the Sphere say, “Listen, no stranger must witness what you have witnessed?” What is the Square’s reaction to being taken into space?
13. Find three words in the text that have the prefix *omni-*. Cite two more such words and tell what they mean. Why does the Sphere say that omnividence doesn’t make a person a God? What qualities does he say make one more divine? What is the Square’s reaction?
14. What is the purpose of the meeting of the Grand Council? Why is the Square’s brother imprisoned? How frequently have beings from Spaceland visited Flatland? How does the Sphere construct a cube? How does the cube appear to the Square? What request by the Square makes the Sphere angry? How does the Sphere demonstrate his “dimensional prejudice?”
15. Why does the Square choose his grandson as his first disciple? What does A Square mean when he says that the boy “took in the situation with an acuteness for which I was quite unprepared?” What happened at the meeting of the Local Speculative Society? Did the Square make any converts to the gospel of three dimensions? dWhat the Square’s punishment? According to the law, what should the punishment have been?

### *Larger Themes*

16. Who was Prometheus? In what way is the Square similar to Prometheus?
17. *Flatland* was first published in 1884, during the reign of the British Queen Victoria, whose name came to symbolize the whole era of the final two-thirds of the 19th century at of the height of the British Empire. (Coincidentally, this was also the year that Mark Twain’s novel *The Adventures of Huckleberry Finn* was first published in the U.S.) What were some of the characteristics of British society during this period? How was it similar to or different from U.S. society then or today? What is *satire* as a literary genre? Is *Flatland* (as a whole, or maybe in part) a satire? Why or why not?

18. Why do you suppose that Abbott chose geometrical figures as the inhabitants of Flatland? What is the effect of that choice?
19. Abbott calls his book a “romance of many dimensions.” How can we interpret that? Is there more than one meaning?
20. It’s pretty clear from Abbott’s life history and other interests that there is also a *religious* dimension to *Flatland*. Can you see what that might be? Explain how a Flatlander’s experience of meeting someone from Spaceland might be similar to an encounter with a higher being or god.
21. Consider the following well-known quotation from the 20th century biologist and biostatistician J. B. S. Haldane, “Now my own suspicion is that the Universe is not only queerer than we suppose, but queerer than we can suppose.” What do you think Haldane is getting at here? How does his idea apply to Lineland, Flatland, and Spaceland?
22. In what ways does *Flatland* connect with our CHQ theme?