

1. An irrational number x is a real number that cannot be expressed as a ratio of integers, e.g., as a fraction. (guidelines 4 and 7)

2. If M and N are real numbers with $M < N$, then \exists a rational number r such that $M < r < N$.
(guidelines 3 and 9)

3. Pure mathematics topics often turn out to have applications, i.e., number theory in cryptography. (guideline 4)

4. f is differentiable everywhere. (guideline 1)

5. A real number ≥ 0 is called nonnegative. (guideline 6)