

नेपाल सरकार
शिक्षक सेवा आयोग
माध्यमिक तह, तृतीय श्रेणी शिक्षक पदको खुला प्रतियोगितात्मक परीक्षा
विषयगत परीक्षा-२०८१

तह : माध्यमिक

समय : ३ घण्टा

विषय : गणित

पूर्णाङ्क : १००

उत्तीर्णाङ्क : ४०

सबै प्रश्नहरू अनिवार्य छन् । प्रत्येक खण्डका लागि बेग्लाबेग्लै उत्तरपुस्तिका प्रयोग गर्नुपर्नेछ, अन्यथा उत्तर पुस्तिका रद्द हुनेछ ।

Group A

1. a) How do you let your students differentiate between sequence and series? How do you teach the sum of the cube of the first n natural numbers by mathematical induction?	2+3
b) Explain the procedures to teach the concept of area and volume of prism with suitable examples.	2+3
2. A theorem states "Opposite sides and angles of a parallelogram are equal." Describe four steps of problem solving approach in teaching this theorem.	10
3. Define conic sections with examples and explain their fundamental features. How would you teach conic sections diagrammatically?	2+4+4
4. What are the different types of central tendency? Illustrate them with suitable diagrams. Describe situation where they are used most appropriately.	4+6
5. Justify with examples why curriculum is necessary on top of a good textbook. Critically appraise the concepts included in the Mathematics curriculum of Grade IX. Also, mention your suggestions for the improvement of the contents included in that of above curriculum.	3+5+2

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Group B

6. a) Explain why integration is the reverse process of differentiation.	4
b) Find the area of the ellipse given below by using the method of integration. $x^2/a^2 + y^2/b^2 = 1$	6
7. State the postulates of Euclidean and non-Euclidean geometries. Discuss the main characteristics of Hyperbolic and Elliptic geometry which differ from that of Euclidean geometry.	5+5

8. List down the problems of antiquity in the history of Mathematics. Explain them with suitable examples.	10
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9. In answering an achievement test of Mathematics, following scores were obtained by 10 girls and 10 boys:

Boys	22	23	25	25	31	33	34	34	35	37
Girls	22	31	38	47	48	48	49	50	53	61

Test whether boys and girls differ significantly in their mean score.	10
10. What are the processes of 'child learning' and 'adult learning' with reference to learning Mathematics? And, write your understanding about 'how children learn' with consideration to the assumptions of behaviorism and constructivism.	10
