National Mathematics Day activities for Class 9 and Class 10: Class 11: answers

CBSE Math Revision · CBSE Class 11 (no calculator) · 22 December · Teacher answers and notes

No calculator. Every answer works out exactly.

Teacher notes

- For CBSE Class 11. No calculator: every answer works out exactly, as in board exams.

Starter

1. **78**
   - 12 × 13 ÷ 2 = 78
2. **1729**
   - 1728 + 1 = 1729
3. **648**
   - 9 choices for the first digit, then 9, then 8: 648
4. **i**
   - 1729 = 4 × 432 + 1, so $i^{1729} = i^1 = i$

Task A: Sequences

a. **6084**
- $(12 \times 13 \div 2)^2 = 78^2 = 6084$

b. **244**
- $22 + 7(n - 1) < 1729$ gives $n - 1 < 243.9$
- $n = 244$

c. **1885**
- A GP with $r = 12$: $(12^4 - 1)/11 = 20735/11 = 1885$

Task B: Counting

a. **24**
- 4! = 24

b. **18**
- The last digit is 1, 7 or 9 (3 ways); the rest in 3! = 6 ways.
- 3 × 6 = 18

c. **12**
- The first digit is 7 or 9 (2 ways); the rest in 6 ways.
- 2 × 6 = 12

Extension

1. **8 divisors, with sum 2240**
   - Number: 2 × 2 × 2 = 8
   - Sum: (1 + 7)(1 + 13)(1 + 19) = 8 × 14 × 20 = 2240

Every question is original and every answer was checked before publishing.