National Mathematics Day activities for IB Maths: MYP / KS3: answers

IB Math Revision · MYP / KS3 (ages 11 to 14) · 22 December · Teacher answers and notes

No calculator needed. Every answer works out exactly.

Teacher notes

- Pitched at MYP and KS3 (ages 11 to 14). Every question works without a calculator; ask for a short method with each answer.

Starter

1. **1728**
   - 12 × 12 = 144 and 144 × 12 = 1728
2. **729**
   - 9 × 9 = 81 and 81 × 9 = 729
3. **1729**
   - 1000 + 729 = 1729
4. **1729: the same as $10^3 + 9^3$**
   - 1 + 1728 = 1729

Task A: Cubes and squares

a. **100**
   - 1 + 8 + 27 + 64 = 100

b. **100: the same**
   - $10^2 = 100$

c. **1681 (= 41^2)**
   - $41^2 = 1681$ and $42^2 = 1764$.

Task B: A magic square

a. **45**
   - 1 + 2 + … + 9 = 45

b. **15**
   - The 3 rows use every number once: 45 ÷ 3 = 15

c. **5**
   - The middle row, middle column and both diagonals all pass through the middle: they add to 4 × 15 = 60.
   - They count every number once and the middle three extra times: 45 + 3 × middle = 60, so the middle is 5.

Extension

1. **7**
   - 5, 4+1, 3+2, 3+1+1, 2+2+1, 2+1+1+1, 1+1+1+1+1

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