

Lunar New Year maths activities for IGCSE and GCSE: answers

IGCSE Math Revision · IGCSE and GCSE (Higher and Extended) · Teacher answers and notes

No calculator needed.

Teacher notes

- Lunar New Year falls on a different date each year: use this pack in the weeks around it.
- If students test the rule on their own birth year, remind them that the lunar year usually begins in January or February.
- Task B (b): students who find a common factor but not the highest one (for example 6 groups) have the right idea; ask for the greatest.

Starter

1. **2**

- $12 \times 169 = 2028$, so the remainder is 2.

2. **60**

- Multiples of 12: 12, 24, 36, 48, 60. 60 is the first that is also a multiple of 10.

3. **12**

- $36 = 2^2 \times 3^2$, $60 = 2^2 \times 3 \times 5$, so $\text{HCF} = 2^2 \times 3 = 12$.

4. **$12n - 4$**

- Difference 12; $8 = 12 - 4$.

Task A: The 12-year cycle

a. **12**

- $2031 - 4 = 2027 = 12 \times 168 + 11$
- $11 + 1 = 12$

b. **2008, 2020, ..., 2092: 8 years**

- We need $Y - 4$ to be a multiple of 12: $Y = 2008, 2020, 2032, 2044, 2056, 2068, 2080, 2092$.

c. **$12n + 1996$; 2596**

- Difference 12; $2008 = 12 + 1996$.
- $12 \times 50 + 1996 = 2596$

Task B: Lanterns and lions

a. **Every 12 m; 9 places**

- $\text{LCM}(4, 6) = 12$.
- 0, 12, 24, 36, 48, 60, 72, 84, 96: 9 places.

b. **12 groups (4 dancers and 3 drummers each)**

- $\text{HCF}(48, 36) = 12$

c. **At 36 m**

- $\text{LCM}(4, 6, 9) = 36$

Task C: Remainders and ratio

a. **27**

- 3, 15, 27: $27 = 5 \times 5 + 2$.

b. **65 and 91**

- $156 \div 12 = 13$; $5 \times 13 = 65$ and $7 \times 13 = 91$.

c. **Colour 8**

- $500 = 12 \times 41 + 8$, so the 500th bead is the 8th colour.

Extension

1. **421**

- $\text{LCM}(7, 10, 12) = 420$; $420 + 1 = 421$

2. **60 years; 6 and 5 times**

- $\text{LCM}(10, 12) = 60$
- $60 \div 10 = 6$ and $60 \div 12 = 5$

Every question is original and every answer was recomputed by computer before publishing.