

Maths about me: a first-lesson icebreaker for CBSE Class 9 and 10: answers

CBSE Math Revision · CBSE Class 9 and 10 · Teacher answers and notes

No calculator. Every answer is a whole number or an exact fraction.

Teacher notes

- Nothing personal is collected: students work on paper, and nothing is typed into the site or stored. If a student would rather not use a real birthday, any date works.
- Pairs for task B: each student writes one riddle with exactly one answer and swaps with a partner, who checks that only one number fits.
- Mindset prompts for the first lesson (for you to read out or put on the board; nothing is collected or stored): 'A time maths felt hard, and what helped'; 'One topic from last year I could teach a friend'; 'What I do when I am stuck'; 'How I want this class to feel'.
- Task A practises the Fundamental Theorem of Arithmetic from the Real numbers chapter: every whole number above 1 has exactly one prime factorisation.

Starter

1. 73

- Two-digit primes with digit sum 10: 19, 37, 73.
- Only 73 has the bigger tens digit.

2. 81

- The squares are 64 and 81.
- $81 = 8 \times 10 + 1$

3. 4

- $96 = 2^5 \times 3$ and $404 = 2^2 \times 101$
- $\text{HCF} = 2^2 = 4$

4. 72

- $8 = 2^3$, $9 = 3^2$, $12 = 2^2 \times 3$
- $\text{LCM} = 2^3 \times 3^2 = 72$

Task A: Maths about me

a. $18 = 2 \times 3^2$ and $120 = 2^3 \times 3 \times 5$

- $18 = 2 \times 9 = 2 \times 3 \times 3$
- $120 = 2 \times 60 = 2 \times 2 \times 30 = 2 \times 2 \times 2 \times 15 = 2^3 \times 3 \times 5$

b. $\text{HCF} = 6$, $\text{LCM} = 360$; $6 \times 360 = 2160 = 18 \times 120$

- $\text{HCF} = 2 \times 3 = 6$ (lowest powers of the common primes)
- $\text{LCM} = 2^3 \times 3^2 \times 5 = 360$ (highest powers)
- $6 \times 360 = 2160$ and $18 \times 120 = 2160$

c. $1808 = 2^4 \times 113$; $\text{HCF} = 2$

- $1808 \div 2 = 904$, $\div 2 = 452$, $\div 2 = 226$, $\div 2 = 113$, and 113 is prime.
- $18 = 2 \times 3^2$: the only common prime is 2, once. $\text{HCF} = 2$.

Task B: 'Who am I?' in pairs

a. **154**

- Multiples of 77 between 100 and 200: 154 only.
- $1 + 5 + 4 = 10$

b. **61**

- $\text{LCM}(2, 3, 4, 5, 6) = 60$
- $60 + 1 = 61$

c. **5/12**

- $1/3 = 4/12$ and $1/2 = 6/12$.
- Between them: $5/12$, already in lowest terms.

Task C: Four 4s

a. **$4/4 + 4/4 = 2$**

- $1 + 1 = 2$

b. **$44/4 - 4 = 7$**

- $44 \div 4 = 11$, and $11 - 4 = 7$

c. **$4 + 4 + 4/4 = 9$**

- $8 + 1 = 9$

d. **$(4 + 4/4) \times 4 = 20$**

- $4 + 1 = 5$, and $5 \times 4 = 20$

Extension

1. **$4 \times 4 - 4/4 = 15$ and $4 \times 4 + 4/4 = 17$**

- $16 - 1 = 15$ and $16 + 1 = 17$

2. **12, 24, 36 and 48**

- $10a + b = 4(a + b)$ gives $b = 2a$.
- $a = 1, 2, 3, 4$ give 12, 24, 36, 48.

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