

Children's Day maths puzzle challenge for CBSE

Class 9 and 10: answers

CBSE Math Revision · CBSE Class 9 and 10 · 14 November · Teacher answers and notes

No calculator. Every answer works out exactly.

Teacher notes

- Run it as a team quiz: teams of three or four, one answer sheet per team, one mark per correct answer, and 1 extra mark for clear working in the algebra round.
- The rounds are independent, so you can use one round as a starter on another day.
- In the number round, the clock and last-digit questions reward spotting a repeating pattern: ask teams to explain how they found it.

Starter

1. **154**
 - $14 \times 11 = 140 + 14 = 154$
2. **14**
 - $2x + 7 = 35$, so $2x = 28$ and $x = 14$.
3. **720°**
 - $(6 - 2) \times 180^\circ = 720^\circ$
4. **10**
 - 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Task A: Number round

- a. **301**
 - Remainder 1 when divided by 2, 3, 4, 5 and 6 means one more than a multiple of $\text{LCM}(2, 3, 4, 5, 6) = 60$.
 - Try 61, 121, 181, 241, 301: the first multiple of 7 is $301 = 7 \times 43$.
- b. **77**
 - $\text{HCF} \times \text{LCM} = \text{product of the numbers}$: $11 \times 154 = 1694$.
 - $1694 \div 22 = 77$
- c. **9**
 - The last digits of $7, 7^2, 7^3, 7^4$ are 7, 9, 3, 1, and then the pattern repeats every 4.
 - $14 = 4 \times 3 + 2$, so the last digit is the same as for 7^2 : 9.

Task B: Algebra round

- a. **Daughter 7, father 28**
 - Let the daughter be x : $4x + 14 = 2(x + 14)$.
 - $4x + 14 = 2x + 28$, so $2x = 14$ and $x = 7$. The father is 28.
- b. **3 or 1/3**
 - $x + 1/x = 10/3$ gives $3x^2 - 10x + 3 = 0$.
 - $(3x - 1)(x - 3) = 0$, so $x = 3$ or $1/3$.

c. **Pen ₹20, notebook ₹25**

- Add the equations: $5p + 5n = 225$, so $p + n = 45$.
- Subtract them: $p - n = -5$.
- So $2p = 40$: $p = 20$ and $n = 25$.

Task C: Geometry round

a. **15 cm; 54 cm²**

- $\sqrt{81 + 144} = \sqrt{225} = 15$
- Area = $\frac{1}{2} \times 9 \times 12 = 54$

b. **120°**

- $3 + 4 + 5 + 6 = 18$ parts = 360° , so 1 part = 20° .
- Largest = $6 \times 20^\circ = 120^\circ$

c. **75°**

- The minute hand points at 6: 180° from 12.
- The hour hand is halfway from 3 to 4: $90^\circ + 15^\circ = 105^\circ$ from 12.
- $180^\circ - 105^\circ = 75^\circ$

Task D: Chance round

a. **1/6**

- (1, 6), (2, 5), (3, 4), (4, 3), (5, 2), (6, 1): 6 of the 36 outcomes.
- $6/36 = 1/6$

b. **8/25**

- Multiples of 4: 12. Multiples of 6: 8. Multiples of both (of 12): 4.
- $12 + 8 - 4 = 16$, so $16/50 = 8/25$.

c. **1/2**

- HHH, HHT, HTH, THH: 4 of the 8 outcomes.
- $4/8 = 1/2$

Extension

1. **204**

- There are 8^2 squares of size 1 by 1, 7^2 of size 2 by 2, and so on down to 1^2 of size 8 by 8.
- $64 + 49 + 36 + 25 + 16 + 9 + 4 + 1 = 204$

2. **47, 49, 51**

- $(x - 2) + x + (x + 2) = 3x = 147$, so $x = 49$.

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