

Christmas maths escape room for CBSE Class 10: answers

CBSE Math Revision · CBSE Class 10 (Class 9 can try most of it) · Teacher answers and notes

No calculator. Every answer is a whole number.

Teacher notes

- How to run it: print the student sheet and cut out the six lock cards. Give each team lock 1. When a team brings you the right code, give them the next card (the answer key is in the answers PDF). The first team to open lock 6 escapes. Teams can also have every card at once and race through them in order.
- Each code is used in the next lock, so check every code before the team moves on: one slip early on breaks the chain.

Starter

1. **12**

- Multiples of 6: 6, 12; 12 is also a multiple of 4.

2. **25**

- $9 + 16 = 25$

3. **19**

- $d = 4$

Lock 1: The wrapping room

a. **12**

- $84 = 2^2 \times 3 \times 7$, $120 = 2^3 \times 3 \times 5$
- $\text{HCF} = 2^2 \times 3 = 12$

Lock 2: The list

a. **49**

- $a_n = 5 + (n - 1) \times 4$
- $a_{12} = 5 + 44 = 49$

Lock 3: The star

a. **77**

- $\sqrt{49} = 7$
- $7 \times 11 = 77$

Lock 4: The polynomial lock

a. **3 and 4; code 12**

- $k = 7$: $x^2 - 7x + 12 = (x - 3)(x - 4)$
- $3 \times 4 = 12$ (the product of the zeroes is $c/a = 12$)

Lock 5: The dice

a. **8**

- $P = 4/6 = 2/3$
- $2/3 \times 12 = 8$

Lock 6: The workshop door

a. **10**

- The point is (6, 8).
- $\sqrt{36 + 64} = 10$

Extension

1. **Slant height 25 cm; curved surface area 550 cm²**

- $l = \sqrt{49 + 576} = 25$
- $\pi r l = 22/7 \times 7 \times 25 = 550$

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