

Summer maths puzzle pack for IGCSE and GCSE: answers

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

No calculator needed.

Teacher notes

- Take-home: print the student sheet for the last lesson before the summer and set it as optional holiday puzzles. Share the answers PDF in the first week back, or put it up after a week so families can check.
- Do the starter together in class so everyone knows how to start a puzzle: draw it, try a small case, look for a pattern.

Starter

1. **25**

- Square numbers: 5^2

2. **2 kg**

- Half a brick weighs 1 kg.

3. **12**

- $31 - 7 = 24$, and $24 \div 2 = 12$

Task A: Number puzzles

a. **15**

- $1 + 2 + \dots + 9 = 45$, shared equally between 3 rows: $45 \div 3 = 15$

b. **8**

- The diagonal through the centre adds to 15: $2 + 5 + ? = 15$

c. **22 and 23**

- $\sqrt{506}$ is about 22.5
- $22 \times 23 = 506$

Task B: Logic puzzles

a. **Ana 15, her brother 5**

- $a = 3b$ and $a + 5 = 2(b + 5)$
- $3b + 5 = 2b + 10$, so $b = 5$

b. **8 goats (and 12 chickens)**

- If all 20 were chickens there would be 40 legs.
- Each goat adds 2 more: $16 \div 2 = 8$ goats

c. **Day 8**

- After 7 days and nights it is 7 m up.
- On day 8 it climbs 3 m to 10 m.

Task C: Shape and counting puzzles

a. **30**

- $16 + 9 + 4 + 1 = 30$

b. **The square, by 4 cm^2**

- Perimeter 28 cm, so the square has side 7 cm.
- $49 - 45 = 4$

c. **45**

- $10 \times 9 \div 2 = 45$

Extension

1. **1**

- Last digits of 7 , 7^2 , 7^3 , 7^4 : 7, 9, 3, 1, then they repeat.
- 100 is a multiple of 4, so the last digit is 1.

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