

## Team attack 05/10/2023

1. What is the minimum number of identical triangles needed to construct an equilateral hexagon from them (without "holes" or overlapping)?
2. The number 123456789 is written on a paper tape. What is the maximum number of parts the tape can be cut into, such that all the numbers on these parts are pairwise coprime?
3. A basketball game between two teams lasted for 45 minutes. At the end of each minute, one of the teams earned either 2 or 3 points. It turned out that both teams were leading for an equal amount of time throughout the game. What is the largest possible difference in the score at the end of the game?
4. Nighttime. A boy, his father, mother, and grandmother are on one side of a river and want to cross to the other side using a bridge. They have only one flashlight among them. At most two people can cross the bridge at the same time (and they must have the flashlight). The father can cross the bridge in 1 minute, the boy takes 2 minutes, the mother takes 5 minutes, and the grandmother takes 10 minutes. What is the minimum amount of time they all need to cross to the other side?
5. In a 12-story building inhabited by penguins, there is an elevator. Only two penguins live on the first floor, and the number of inhabitants on each floor doubles as you go up. Which button in the elevator of this building is pressed more often than others?
6. At some point during a game of chess, one player moved 4 pieces and 1 pawn, while the other player moved 1 piece and 2 pawns, and no piece or pawn moved twice. Where was the white queen located at this moment?
7. A monkey climbs one of the 100 floors of a skyscraper and drops a coconut from above. She is trying to find out the lowest floor from which she must drop the coconut for it to break. What is the minimum number of attempts needed for this, if the monkey has only two coconuts?

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