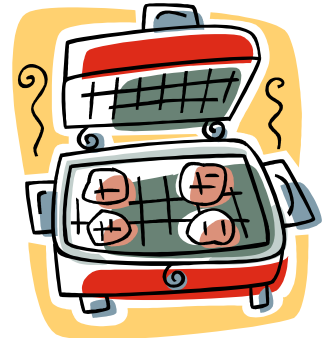


Year 5. Session 111 (2009-2010 school year).

Mathematical Auction.

1. The frying pan can hold not more than 10 hamburgers at the same time. A burger should be cooked for 5 minutes on each side. Each burger has two sides. What is the shortest time it takes to fully cook 17 burgers?
2. The potion lab in Hogwarts has a considerable supply of love potion. A big jar holds 12 ounces of potion. Hermione is allowed to take half on the whole supply. The girl has two empty bottles: a 7 ounce one and a 5 ounce one. She can pour the potion from the jar into a bottle, from a bottle into the jar and from a bottle into a bottle as many times as she needs to. Her goal is to pour 6 ounces of potion into the 7 ounce bottle. What is the minimal number of operations she has to do before she is able to walk away with her potion?
3. Using the digits 1, 2, 3, 4, 5, 6 and four arithmetic operations, write as many consecutive natural numbers as possible starting with 1. Don't modify the order of the numbers. For example: $2 = (1 - 2)/(3 - 4) - 5 + 6$.
Note: For this problem, a team should present at least one solution that was not presented by the previous teams.
4. Find the biggest natural number that has no zeroes in its decimal notation, that is less than a million and that is divisible by the sum of its digits.
5. A farmer grows bananas in a desert oasis. He has 3000 bananas and market is 1000 miles away. He has only a camel to transport bananas, but there are two problems:
 - a) The camel can only carry at most 1000 bananas at a time
 - b) The camel will only walk if munching on a banana. He eats one banana for every mile he walks.



What is the maximum number of bananas the farmer can get to market using ONLY the camel to transport them? Hint: The farmer may carry bananas part-way, drop off a supply of bananas, walk back to start (make sure the camel still has enough bananas to do this!), re-boost his supply, and so on.

