

Your Name: \_\_\_\_\_ Room: \_\_\_\_\_  
Grade: \_\_\_\_\_ Teacher: \_\_\_\_\_

Montlake Math Challenge  
Montlake Elementary School  
October 25, 2007

**Instructions:** In groups, try to answer as many of these questions as you can.

**HOMEWORK:** Finish this worksheet for our next meeting on November 1.

All of these problems can be solved by using facts about even and odd numbers. Remember, **even** numbers are numbers that are divisible by 2. For example, the numbers 2, 4, 6, 8, 46, 72, 144, 260, and 35992 are all even. A number that is not even is an **odd** number. An odd number is a number that has a remainder of 1 when it is divided by 2. For example, 1, 3, 5, 7, 9, 27, 39, 97, 105, and 8838191 are all odd numbers.

**Question 1:** If  $a$  and  $b$  are even numbers and  $m$  and  $n$  are odd numbers, is each of the following numbers even or odd?

1.  $a + b$
2.  $a + m$
3.  $m + n$
4.  $a - b$
5.  $a \times b$
6.  $m \times n$
7.  $a \times n$
8.  $a \times m + b$

**Question 2:** Is it possible to cover a  $5 \times 5$  square checkerboard with dominoes whose dimensions are  $1 \times 2$ ? Why or why not?

**Question 3:** At the market, apples cost 49 cents each, oranges cost 89 cents each, and pears cost 59 cents each. Steve goes to the market and buys nine pieces of fruit. The cashier charges him \$5.16, and Steve knows that this cannot be correct. How does he know? (There is no tax at the market)

**Question 4:** Amir is bored one day, and he decides to play a game. He starts by standing in the middle of a long hallway. In this game, Amir takes a turn by flipping a coin. If the coin shows Heads, he moves one foot to his right. If the coin shows Tails, he moves one foot to his left. After he takes 2007 turns, is it possible for Amir to be back at the same place he started?

**Question 5\*:** One day, while The Man in the Yellow Hat is out, Curious George tears 15 pages from a book he finds on the bookshelf. Being curious, George adds up the 30 numbers he found on the pages. Is it possible that George got 1848 as the sum of these 30 numbers?