



July, 2016 – Grades 5 & 6

Individual Questions (Part 2)

Total pages: 1, Total points: 40

Time limit: 30 minutes

Name (Print): _____

Question #1 (8 points)

If each of 2016 integers has an absolute value of 1, how many different sums of these 2016 integers are possible?

Question #2 (8 points)

Of the 5-digit positive integers whose digits all come from {1, 2, 3}, how many are divisible by 8?

Question #3 (8 points)

Write, in simplest reduced form, the value of

$$\frac{(33\ 333\ 333)^2 - (33\ 333\ 333)(16\ 666\ 667) + (16\ 666\ 667)^2}{(33\ 333\ 333)^2 - (33\ 333\ 333)(16\ 666\ 666) + (16\ 666\ 666)^2}$$

Question #4 (8 points)

Al, Barb, Cal, Di, Ed, Fred, and Greg participated in a chess tournament. Each player must play each of his six opponents exactly once. So far, Al has played 1 match. Barb has played 2 matches. Cal has played 3 matches. Di has played 4 matches. Ed has played 5 matches, and Fred has played 6 matches. How many matches has Greg played at this point?

Question #5 (8 points)

What is the greatest number of different integers I can choose from the first 100 positive integers so that no three of these integers could be the lengths of the sides of the same triangle?