Problems of the Week (POWs) Assignments

Your solution will be graded according to the Math 396 POW Scoring Rubric, and thus your write up should include all your reasoning, and not just a final answer. The emphasis of these assignments is on clear, complete and precise explanations. Please write your solutions in a way that a "typical" student in the 5-8th grade range will be able to follow it.

If you do not like the score you receive on a particular POW, you can choose the other POW from that assignment and turn in your solution by the last day of class. Please attach the POW you wish to replace. I will average the scores of the two attempts.

These problems were taken from: http://www.cmc.uwaterloo.ca, Crossing the River with Dogs Instructor Resources by Johnson, Herr and Kysh; Problem Solving Through Recreational Mathematics by Averbach and Chein.

POW 1 DUE 4/21: Choose one of the following two problems:

1. In his autobiography, Count Burr Turr tells about an occasion during his childhood when he decided to write all the counting numbers from one to one million. It was a noble undertaking, but his arm gave out after he had written only 31,676 digits. Assuming that the Count was using decimal notation, what was the last digit he wrote before his arm grew numb?

2. Chantelle had two candles, one of which was 32 cm longer than the other. She lit the longer one at 3 p.m. and lit the shorter one at 7 p.m. At 9 p.m., they were both the same length. The longer one was completely burned out at 10 p.m. and the shorter one was completely burned at midnight. The two candles burned at different, but constant, rates. What was the sum of the original lengths of the two candles?

POW 2 Due 5/5: Choose one of the following two problems:

1. A list of six positive integers p; q; r; s; t; u satisfies p < q < r < s < t < u. There are exactly 15 pairs of numbers that can be formed by choosing two different numbers from this list. The sums of these 15 pairs of numbers are:
   25; 30; 38; 41; 49; 52; 54; 63; 68; 76; 79; 90; 95; 103; 117:
   Which sum equals r + s?

2. Armand Alloway, Basil Bennington, Col. Carlton Cunningham, Durwood Dunstan, and Everett Elmsby, Esq. are the five senior members of the Devonshire Polo Club. Each owns a pony that is named after the wife of one of the others.

   Mr. Alloway’s pony is named Georgette; Col. Cunningham owns Jasmine; and Mr. Elmsby owns Inez. Francine, owned by Mr. Dunstan, is named after Alloway’s wife. Georgette’s husband owns the pony that is named after Mr. Bennington’s wife. Helene Cunningham is the only wife who knows how to ride a horse.

   Who is Jasmine’s husband? Who owns Helene?
POW 3 Due 5/26: Choose one of the following two problems:

1. Two years ago, I was three times as old as I was eight years before I was half as old as I will be six years from now. How old am I?

2. I was taking a walk one day when I noticed two people walking toward me. When they were passing a fire hydrant up ahead, I started counting seconds. From that point it took me 15 seconds to pass them and another 12 seconds to reach the fire hydrant. Ten minutes after I passed them the first time, I passed them again. I realized that we were walking around the block in opposite directions. I know that I walk one yard per second. What is the distance all the way around the block?