**COMC Problem Set 2**

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**Junior Problems**

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| **Points** | **Question** |
| **1** | Carmen selects four different numbers from the set {1, 2, 3, 4, 5, 6, 7} whose sum is 11. If ` is the largest of these four numbers, what is the value of `? |
| **2** |  |
| **3** |  |
| **4** | Charlotte writes a test consisting of 100 questions, where the answer to each question is either TRUE or FALSE. Charlotte’s teacher announces that for every five consecutive questions on the test, the answers to exactly three of them are TRUE. Just before the test starts, the teacher whispers to Charlotte that the answers to the first and last questions are both FALSE.  (a) Determine the number of questions for which the correct answer is TRUE.  (b) What is the correct answer to the sixth question on the test?  (c) Explain how Charlotte can correctly answer all 100 questions on the test. |
| **4** |  |

**Senior Problems**

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| **Points** | **Problem** |
| **1** | The positive integers 15, 12 and n have the property that the product of any two of them is divisible by the third. Determine the smallest possible value of n. |
| **2** |  |
| **3** |  |
| **4** |  |
| **4** | Determine the sum of all integer values of the parameter r for which the equation  x3 − rx + r + 11 = 0 has at least one positive integer solution for x. |