The Mathematical Crusade Junior Surprise Event

Q 1. Solve the sudoku.

|  | H |  |  |  |  |  |  |  |  |  | G |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | D | L |  | K |  | A |  | E |  | B |  |  | F |
|  |  | J |  | 1 | D | D |  | B | G |  |  |  |  |
|  |  | B |  |  |  |  |  |  |  | C | K |  | L |
| D |  |  | K | A |  |  |  | L |  |  |  |  | C |
|  |  | C | B |  | H | H |  |  | D |  | L |  |  |
|  | G |  | I |  |  | C | C |  | E | J |  |  |  |
| A |  |  |  | C |  |  |  | K | B |  |  |  | 1 |
| B | J | H |  |  |  |  |  |  |  | \| |  |  |  |
|  |  |  | C | F |  | B | B | H |  | E |  |  |  |
| F |  | 1 |  | H | $J$ |  |  | G |  | K | B |  |  |
|  | A |  |  |  |  |  |  |  |  |  | F |  |  |

Q 2. The word "answer" in the test refers to YOUR answer, not some hypothetical "best" answer.
After choosing the 8 answers score the test by comparing each question with your answers.
Score 1 point for each question answered correctly, o otherwise.
Keep re-taking the test, trying to get the highest possible score.

1. The next question with the same answer as this one is:
(A) 2 (B) 3 (C) 4 (D) 5
2. The first question with answer $C$ is:
(A) 1 (B) 2 (C) 3 (D) 4
3. The last question with answer $A$ is:
(A) 5 (B) 6 (C) 7 (D) 8
4. The number of questions with answer $D$ is:
(A) 1 (B) 2 (C) 3 (D) 4
5. The answer occurring the most is: (if tied, first alphabetically) (A) A (B) B (C) C (D) D
6. The first question with the same answer as the question following it is:
(A) 2 (B) 3 (C) 4 (D) 5
7. The answer occurring the least is: (if tied, last alphabetically)
(A) A (B) B (C) C (D) D
8. The highest possible score on this test is:
(A) 5 (B) 7 (C) 6 (D) 8


## Across

3. Oiler (5)
4. The amount of space taken by a 3-D object (6)
5. It is no longer the center of the city. (HINT: Think inside the conic sections) (12)
6. It's going to go on and on and on..... (9)
7. This famous mathematician and scientist wrote more on religion and alchemy than he did on natural science. (6)
8. One concerned with particular problems related to logic, space, transformations, numbers and more general ideas that encompass these concepts. Oh come on, you are one!
9. "There are lies, damned lies and $\qquad$ ."Benjamin Disraeli (10)
10. Chance of finding these are $1 / \ln (N)$ [N-natural numbers] (12)
11. Some Indian-Greek Tea (3)
12. "This statement is false", Grand-hotel mystery, Zeno's are examples of a $\qquad$ . (7)

## Down

1. At least 2 birds will be in the same hole. (10)
2. Take away. (8)
3. Falling green numbers. (6)
4. dx / dt (10)
5. Autograph of a triangle. (4)
6. Man's favourite rotten fractal (10)
7. Do butterfly's wings cause tornadoes? $\qquad$ Theory (5)
8. To $\qquad$ and beyond! (8)
9. "Formatted" in 1601, 300 years before one of his theorems was solved. (6)
10. Tasty mathematical constant (2)

## Numbrix

Start anywhere, fill in the blank squares with missing numbers so that they make a path in numerical order, 1 through 81, i.e. 2 will be adjacent (horizontally or vertically) to 1 and 3 and so on till 80 , which will be adjacent to 79 and 81 . You can work horizontally or vertically in any direction. Diagonal paths are not allowed.

|  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | 77 |  | 7 |  | 21 |  | 25 |  |
|  |  | 79 |  | 3 |  | 19 |  |  |
|  | 11 |  |  |  |  |  | 31 |  |
|  |  | 13 |  |  |  | 17 |  |  |
|  | 69 |  |  |  |  |  | 35 |  |
|  |  | 57 |  | 59 |  | 63 |  |  |
|  | 51 |  | 47 |  | 61 |  | 39 |  |
|  |  |  |  |  |  |  |  |  |

