**Name: Number correct:\_\_\_\_\_\_\_\_\_\_\_**

**School:**  **Time:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**CHILES MINI MU**

**24**

**Division (circle one) : Elementary Middle School Sponsor**

**DO NOT TURN THIS SHEET OVER UNTIL TOLD TO BEGIN**

1. **This is a 10 minute test with 10 problems.**
2. **In each problem, you are given some numbers. You may use any or all of the four basic functions (that is, addition, subtraction, multiplication, division) as well as parentheses to create an expression containing ALL given numbers that results in an answer of 24. Feel free to write things out as fractions. Pay attention to order of operations.**
3. **You may not combine two numbers together like 1 and 1 becoming 11; you also may not use exponents or roots. Any answer not using all numbers or using an illegal function will be counted as incorrect. The numbers do not have to be used in the order they are given. A sample problem is given below.**
4. **You may have scratch work on this paper but only the expression or equation written on the answer line will be graded.**
5. **Use a pencil on this test and write answers as legibly as possible.**
6. **Make your answers as concise as possible. As long as your answer results in an answer of 24, it will be counted as correct. This means there will be multiple correct answers for some questions. All questions are solvable, but some are harder than others. The test questions are arranged in roughly increasing difficulty.**
7. **Your score will be the number of correct answers. Ties will be broken by comparing tests starting from question 10: Whichever paper has a later problem correct will receive the higher placing. If ties cannot be broken using this method, a tiebreaker will occur. In particular, this year, there is no advantage to turning your test in early.**
8. **You will receive warnings at 3 minutes and 1 minute remaining.**
9. **Good luck and have fun!**
10. **Sample problem and answer:**

(5 x 5) – (1 x 1) = 24

*Ex.* ***1, 1, 5, 5*** **Answer:**

**Remember: You must use ALL numbers and ONLY addition, subtraction, multiplication, and division!**

**All questions are solvable! Good luck!**

|  |  |
| --- | --- |
| **Question and Scratch Space** | **Answer** |
| ***1, 2, 6, 2*** |  |
| ***5, 5, 5, 5*** |  |
| ***5, 5, 5, 5, 5*** |  |
| ***8, 8, 8, 4*** |  |
| ***2, 13, 13, 2*** |  |
| ***6, 6, 20, 4, 20*** |  |
| ***1, 3, 3, 3*** |  |
| ***1, 4, 5, 6*** |  |
| ***10, 12, 14, 16*** |  |
| ***10, 12, 14, 16*** |  |

**Only some solutions are listed. You can easily check if a solution is valid or not; if it equals 24 then it’s valid.**

|  |  |
| --- | --- |
| **Question and Scratch Space** | **Answer** |
| ***1, 2, 6, 2*** | (2 + 2)(6 • 1) |
| ***5, 5, 5, 5*** | (5 • 5) – 5/5 |
| ***5, 5, 5, 5, 5*** | (5 • 5 • 5 – 5)/5 |
| ***8, 8, 8, 4*** | (8/4) • 8 + 8 |
| ***2, 13, 13, 2*** | 13(2 – 2/13) |
| ***6, 6, 20, 4, 20*** | (6 • 20 + 20 + 4)/6 |
| ***1, 3, 3, 3*** | (1 + 3) • (3 + 3) |
| ***1, 4, 5, 6*** | 4 / (1 – 5/6) |
| ***10, 12, 14, 16*** | (10 + 12) + (14 – 16) |
| ***10, 12, 14, 16*** | **(**13 – 13/13) • 2 |