**Name: Correct \_\_\_\_\_ x 5=\_\_\_\_\_\_**

**School:** **Skipped \_\_\_\_\_x 1= \_\_\_\_\_\_**

**Wrong \_\_\_\_\_ x 0= \_\_\_\_\_\_**

**Total \_\_\_\_\_\_\_**

**CHILES MINI MU**

**MENTAL MATH 2021**

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

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

* 1. **Do NOT turn your paper over until told to do so.**
  2. **This test has an 8 minute time limit and contains 40 questions.**
  3. **All problems must be solved MENTALLY.**
  4. **There is to be NO WRITING on the test OTHER THAN THE ANSWER.**
  5. **If any stray marks are found, you will be disqualified**
  6. **Your answer should be written on the line provided.**
  7. **No erasures may be made once an answer is written.**
  8. **Please use a pen with blue or black ink when writing your answer.**
  9. **All problems should be in exact value, unless otherwise stated.**

**10. Fractions may be given as improper fractions, mixed numbers, or exact decimals, unless otherwise directed.**

**11. You will receive 5 points for each correct answer, 1 point for each question skipped, and 0 points for each incorrect answer**

**12. Wait for my signal to begin then you will have 8 minutes of working time. You will receive a warning at 1 minute remaining and again at 15 seconds remaining.**

\_\_\_\_\_\_\_\_\_\_1. Evaluate .

\_\_\_\_\_\_\_\_\_\_2. Test writing is quite hard, and if David can write 8 problems in 3 hours, then how many problems can David write in 384 hours?

\_\_\_\_\_\_\_\_\_\_3. Find the sum of the first 100 whole numbers.

\_\_\_\_\_\_\_\_\_\_4. Find the sum of the greatest common factor and least common multiple of 240 and 96.

\_\_\_\_\_\_\_\_\_\_5. This will be a nice problem, how many days are in December and January combined?

\_\_\_\_\_\_\_\_\_\_6. What is the area of an equilateral triangle with side length 7?

\_\_\_\_\_\_\_\_\_\_7. Find .

\_\_\_\_\_\_\_\_\_\_8. People do not like it when I dab, and that is very sad. On average, how many times do I dab in 1 second if I dab 25200 times in 1 hour?

\_\_\_\_\_\_\_\_\_\_9. Find the sum of the positive proper divisors of the number 90.

\_\_\_\_\_\_\_\_\_\_10. What is the sum of the exterior angles of a convex pentagon in degrees?

\_\_\_\_\_\_\_\_\_\_11. Find the sum of the even factors of 1280.

\_\_\_\_\_\_\_\_\_\_12. A function is defined as , find .

\_\_\_\_\_\_\_\_\_\_13. Find .

\_\_\_\_\_\_\_\_\_\_14. Find the sum of the first 5 odd prime numbers.

\_\_\_\_\_\_\_\_\_\_15. If three angles of a quadrilateral measure 70 degrees, what is the degree measure of the fourth angle?

\_\_\_\_\_\_\_\_\_\_16. Find the number of diagonals a convex hexagon has.

\_\_\_\_\_\_\_\_\_\_17. Find the average of the numbers in this set {54, 297, 66}.

\_\_\_\_\_\_\_\_\_\_18. If 1 bruh equals 4 bros, 7 bois equals 3 bros, and 4 boiz equals 3 bois, how many boiz is 18 bruhs equal to?

\_\_\_\_\_\_\_\_\_\_19. There are 40 characters to choose from in Big Brain Bros. Given that my friend Jack and I choose each character with equal probability, what is the probability we pick the same character?

\_\_\_\_\_\_\_\_\_\_20. How many combinations of 1 entree, 1 snack, and 1 beverage can be chosen if there are 4 entrees, 3 snacks, and 3 beverages available?

\_\_\_\_\_\_\_\_\_\_21. Given linear functions and , compute .

\_\_\_\_\_\_\_\_\_\_22. Evaluate

.

\_\_\_\_\_\_\_\_\_\_23. Given the function , compute .

\_\_\_\_\_\_\_\_\_\_24. Find the remainder when is divided by 100.

\_\_\_\_\_\_\_\_\_\_25. I invited three friends, Cyrus, Jiayi, and Bruce to play some good games with me. If they each accept my invitation with probability 2/3, what is the probability that exactly two of them will play some good games with me?

\_\_\_\_\_\_\_\_\_\_26. If , find .

\_\_\_\_\_\_\_\_\_\_27. Auska's phone goes from full to empty in 30 minutes, but recharges in 15 minutes. How long can Auska use his phone until his phone runs out of battery if his phone starts at full battery, and he repeats a cycle of first using his phone for 20 minutes and then charging his phone for 3 minutes? Assume that Auska is not using his phone while it is charging.

\_\_\_\_\_\_\_\_\_\_28. If and , find the value of .

\_\_\_\_\_\_\_\_\_\_29. What is the area of a square with a side length of 85?

\_\_\_\_\_\_\_\_\_\_30. Dylan eats nuggets either 7 at a time or 8 at time, and this is the only way Dylan will eat his nuggets. What is the largest amount of nuggets that he cannot eat while eating 7 or 8 at a time?

\_\_\_\_\_\_\_\_\_\_31. Find the sum of the values of x which makes where .

\_\_\_\_\_\_\_\_\_\_32. What is the circumference of a circle with diameter 15 rounded to the nearest whole number?

\_\_\_\_\_\_\_\_\_\_33. Jessica, Rachel, and Melissa love walking at superhuman speeds. Jessica walks 7 meters in a second, Rachel walks 4 meters in a second, and Melissa walks 10 meters in a minute. Assuming they keep this pace, what is the combined number of meters that they walk if all three of them walk for 1 minute without stopping?

\_\_\_\_\_\_\_\_\_\_34. Find the sum of the x-intercept and y-intercept of .

\_\_\_\_\_\_\_\_\_\_35. Assume that a and b are real and that

. Find the sum of all primes values of

\_\_\_\_\_\_\_\_\_\_36. You can buy picture frames in bundles of 1, 3, and 8 frames, with the bundles costing $1.00, $2.25, and $6.40, respectively. What is the minimum cost of 20 frames?

\_\_\_\_\_\_\_\_\_\_37. Kaitlyn can solve 354 problems in 3 hours and John can solve 5 problems in 1 minute. What is the combined number of problems that they can solve in 2 hours?

\_\_\_\_\_\_\_\_\_\_38. How many positive three-digit integers have 3 distinct digits?

\_\_\_\_\_\_\_\_\_\_39. Ayyyyy, the penultimate question! 100 fair 6-sided dice are rolled, what is the probability that the sum of the numbers rolled by the die is divisible by 2?

\_\_\_\_\_\_\_\_\_\_40. Ayyyyy, the last question! What is 1+1?