Speed Math

Test #642

Name: _____

ID Number: _____

School: _____

Division (circle one):

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_____ 1. Bill is two years older than Mary, and in two years he will be twice Mary's age three years ago. How old is Bill now?

_____ 2. Simplify: $\log_8\left(\sqrt{2^{0.75}}\cdot\left(2^6\right)^{1/3}\right)$

_____ 3. A mixture consists of 40% water, 35% bromine, and 25% mercury. If adding 15 milliliters of bromine would make the mixture have equal parts water and bromine, how many milliliters of mercury are in the solution?

_____ 4. The smaller two numbers of a Pythagorean triple are 133 and 156. Find the largest number in this triple.

_____ 5. Evaluate the expression when $x=2$:

$-3x^5+3x^4-9x^3+x^2+2x+5$

_____ 6. In how many distinct ways can three indistinct nickels and three indistinct quarters be arranged in a line so that quarters are on both ends?

_____ 7. In a long row of lockers numbered with consecutive integers beginning with 1, every 6th locker (starting with locker number 1) has gum on it, every 7th locker (starting with locker number 1) has a sticker on it, and every 11th locker (starting with locker number 1) has a poster on it. What number is the first locker (after locker number 1) to have all three items on it?

_____ 8. Given $f(x)=\dfrac{x+2}{x-1}$, where $x\neq 1$, find a rational expression for $f^{-1}(x)$.

_____ 9. Six integers from a list of nine total integers are 7, 8, 3, 5, 9, and 5. What is the largest possible value of the median of the nine integers in this list?

_____ 10. What value of *x* solves the equation $2(2x-4)-(3x-6)=8+3(4-7x)$?

_____ 11. How many "a"'s are in this sentence?

_____ 12. What is the *y*-intercept of the line through the points (-3,6) and (4,8)?

_____ 13. There exist two 4-digit positive integers whose digits are 3 or less such that for each integer, the first digit is the number of zeros in the integer, the second digit is the number of ones in the integer, etc. Find the sum of these two integers.

_____ 14. What is the positive value of *x* that satisfies $x^2+4x+55=100$?

_____ 15. If a car goes one mile at *x* miles per hour and then one mile at *y* miles per hour, find a simplified expression representing the average speed of the car, in miles per hour, over those two miles.

_____ 16. Compute $(1+i)^{12}$.

_____ 17. The supplement of an angle is five times the angle. What is the degree measure of twice the complement of the angle?

_____ 18. Evaluate: $1+1\cdot1+1-1\div1-1\cdot1\cdot1+1$

_____ 19. After spending 1/4 of my money, then 1/5 of what I have remaining, I now have \$66 remaining. How many dollars did I start with?

_____ 20. Mr. and Mrs. Smith have three children. What is the probability that they have exactly two boys? At any time, a boy or girl is equally as likely to be born.

_____ 21. How many diagonals does a regular icosagon have?

_____ 22. Movie tickets at a theater cost \$4/child and \$6/adult. If 25 tickets cost \$130, how many of these tickets were child tickets?

_____ 23. Solve for *p*: $|2p+4|=24$

_____ 24. Find the area, in square units, enclosed by a circle circumscribing a regular hexagon whose side length is 8 units.

_____ 25. The base of an equilateral triangle lies on the *x*-axis. Find the sum of the slopes of the three sides of the triangle.