You have 10 minutes to complete this test. Your score is the amount of correct answers you have. Ties will not be broken. Write nothing on this sheet except for your answers; you may use additional scratch paper for work. Good luck, and have fun!

Name/School/Division:_____

1. $25^2 - 15^2 =$
2. $1 + 2 + 3 + 4 + \cdots + 200 =$
3. The area of a square with diagonal of length $2\sqrt{2} =$
4. A regular $n-$gon has 35 diagonals. $n =$
5. The remainder when $4^{68} + 6 \cdot 5^{48}$ is divided by 23 =
6. $81 \times 11 =$
7. $44_5 + 55_6 + 66_7 = X_{10}$. $X =$
8. $\dfrac{1}{1 \cdot 2} + \dfrac{1}{2 \cdot 3} + \dfrac{1}{3 \cdot 4} + \cdots + \dfrac{1}{99 \cdot 100} =$
9. The 25th term of an arithmetic sequence with first term $a = 5$ and common difference $d = \frac{23}{24}$ is
10. If $x + \frac{1}{x} = 5$ and $x > 0$, then $x^3 + \frac{1}{x^3} =$
11. Minimum possible value $f(x)$ where $f(x) = x^2 - 4x + 5$ is
12. $123 \times 456 =$
13. Least common multiple of 24, 32, and 42 =
14. The area of the quadrilateral with vertices at $(1, 1)$, $(2, 5)$, $(-1, 4)$ and $(5, 2)$ is
15. If $a^2 + b^2 = 2$ and $ab = 3$ then $\frac{a}{b} + \frac{b}{a} =$
16. The intersection point of the lines $5x + 2y = 7$ and $3x - 6y = 4$ is (,).
17. The slope of the line through the points $(2, 3)$ and $(52, 63)$ =
18. $a\Omega b = ab + a + b$. $49\Omega59 =$
19. The arithmetic mean of the set of numbers $\{2, 6, 10, \ldots, 198\}$ is
20. Simplify $\sqrt{45} + \sqrt{144} + \sqrt{112} + \sqrt{12}$:
21. The sum of the coefficients in the expansion of $(w + 2x - 5y + 3z)^{1337}$ is
22. Volume of a regular hexahedron with side length 6 =
23. $\displaystyle\sum_{n=1}^{\infty} \frac{n}{2^n} =$
24. 2010! ends in n zeroes. $n =$
25. The roots to the cubic $x^3 - 3x^2 + 5x - 2$ are r, s, and t. $r^2 + s^2 + t^2 =$
26. A book has 750 pages. Assuming the first page is page 1, the number of digits used for the page numbers in the book is
27. The sum of the even integers satisfying $|2x - 1| < 20$ is
28. Let S be a set of k distinct positive odd integers less than 100. Find the least value of k that ensures that there exist two elements in S with sum 102.
29. The sum of the first 30 triangular numbers is
30. Square $ABCD$ with $AB = 12$ has a semicircle with diameter $\overline{CD}$ drawn on the interior of the square. Point E is chosen on $\overline{AB}$ such that $AE = 4$. Point F is chosen on $\overline{BC}$ such that $\overline{EF}$ is tangent to the semicircle. Then the length of EF is