ALGEBRA I INDIVIDUAL TEST
VERO BEACH HIGH SCHOOL INVITATIONAL
JANUARY 24, 2004

NOTA stands for "None of the Above" answers is correct.

1. What percent of 300 is 201?
   A. 0.67% B. 66 2/3% C. 67% D. 105% E. NOTA

2. Find the sum of the roots of $x^2 - 7x + 12 = 0$.
   A. -7 B. 5 C. 6 D. 7 E. NOTA

3. Simplify: $2^{n-1} \cdot 2^{n-3} \cdot 2^{5n}$
   A. 2^{7n-2} B. 2^{7n-4} C. 2^{6n-2} D. 2^{6n-4} E. NOTA

4. Find the remainder when $2x^2 + 5x - 30$ is divided by $(x - 6)$.
   A. 5 B. 12 C. 17 D. 72 E. NOTA

5. Simplify: $\frac{x^2-4}{x^2-5x+6} \cdot \frac{x^2-3x-10}{x+2}$; where no denominator is equal to zero.

   A. $\frac{x-5}{x-3}$ B. $\frac{x+2}{x-3}$ C. $\frac{x^2-3x-10}{x-3}$ D. $\frac{x^2-4}{x^2-5x+6}$ E. NOTA

6. Teresa has some coins, all quarters. Chelsea has 12 more coins than Teresa, all dimes. Their combined value is \$9.60. What is the sum of the digits in the number of coins Chelsea has?
   A. 5 B. 6 C. 8 D. 9 E. NOTA

7. Find the greatest common factor of $2x^2y^3z$ and $4x^5y^2$.
   A. xyz B. $2x^2y^2$ C. $2x^5y^3z$ D. $4x^5y^3z$ E. NOTA

8. Find the reciprocal of the additive inverse of the multiplicative inverse of $-\frac{1}{5}$.

   A. -5 B. $-\frac{1}{5}$ C. 1/5 D. 5 E. NOTA

9. Ponyboy is twice as old as Gasoline Man. Ten years ago, Ponyboy was four times Gasoline Man's age. Find the sum of the digits in Gasoline Man's present age.
   A. 3 B. 6 C. 15 D. 45 E. NOTA

10. Find the degree of the following trinomial: $3x^4y^5 + 5x^2y^3 - 4xy^2$.
A. 4 B. 5 C. 9 D. 20 E. NOTA

11. Find the slope of the line $2x - 3y = 1$.
A. $-\frac{2}{3}$ B. $\frac{1}{3}$ C. $\frac{2}{3}$ D. $\frac{3}{2}$ E. NOTA

12. Find the sum of the range, mode, median, and mean for the set of data: {4, 5, 7, 3, 2, 3, 1}
A. $\frac{109}{7}$ B. $\frac{123}{7}$ C. 37 D. 39 E. NOTA

13. The sum of two numbers, $a + b$, is 24, and the product of these numbers, ab, is 128. Find the absolute value of their difference.
A. −8 B. 0 C. 8 D. 24 E. NOTA

14. An 80mL solution of sparkling cider in grape juice contains 25% sparkling cider. How much grape juice needs to be added to make this a 15% sparkling cider solution?
A. 43 1/3 mL C. 113 1/3 mL E. NOTA
B. 53 1/3 mL D. 133 1/3 mL

15. Let # be defined as follows: $M \# U = 3M + U^2$. Find 8 # 3.
A. 32 B. 73 C. 88 D. 101 E. NOTA

16. If B varies jointly with E and D when $B = 24$, $E = -2$, and $D = 3$, then find E when $B = 4$ and $D = -1$.
A. −1 B. 1 C. 2 D. 4 E. NOTA

17. Which of the following is NOT a property of Equality of Real Numbers?
A. Reflexive Property C. Transitive Property E. NOTA
B. Commutative Property D. Symmetric Property

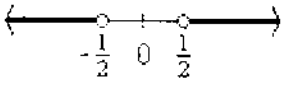
18. What is the units digit of 2004^{2004}?

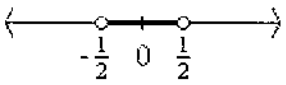
A. 0 B. 2 C. 4 D. 6 E. NOTA

19. Completely factor $3x^2 - x - 14$.

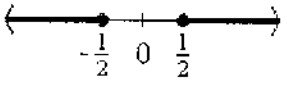
A. $(x + 2)(3x + 7)$ C. $(x - 2)(3x + 7)$ E. NOTA
B. $(x + 2)(3x - 7)$ D. $(x - 2)(3x - 7)$

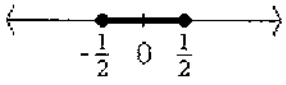
20. Which of the following depicts the solution to $|8m| - 1 > 3$?

A. 

C. 

E. NOTA

B. 

D. 

21. Find the sum of the x-intercept, the y-intercept, and the slope of the line containing the points (2,3) and (4, 7).

A. –2 B. M$-\frac{3}{2}$ C. $\frac{3}{2}$ D. 2 E. NOTA

22. Evaluate: $(6^2 + 2^2x)^0 \cdot (x + 2)$ if $x = 9$.

A. 0 B. 9 C. 11 D. 12 E. NOTA

23. Find the sum of x and y in the solution (x, y) to the system: $3x + 5y = 10$
$2x + 6y = -4$

A. –6 B. –4 C. 10 D. 14 E. NOTA

24. Andy is skipping around the otter pond with his Krispy Kreme doughnut. Hiding behind a bush is very hungry Amit. When Andy finally approaches the bush, Amit pounces and snatches the doughnut from Andy. If Amit takes off running at 3:00 p.m. going at a rate of 3 miles per hour, and Andy realizes the doughnut is missing at 3:15 p.m. and promptly chases after Amit at a rate of 4 miles per hour, what time will Andy catch Amit if they start at the same point and travel along the same route? (Hint: $d = rt$ where d = distance, r = rate, and t = time.)

A. 3:30 p.m. B. 3:40 p.m. C. 3:50 p.m. D. 4:00 p.m. E. NOTA

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25. Bonnie, the town bully of Vero Beach, and her sidekick, Shishamango, find out that Starkey has moved to town. After a coincidental meeting in the local spoon store, Bonnie and Shishamango challenge Starkey to a somersaulting contest. If Starkey does 11 more than 3 times the number of somersaults Bonnie does, and Bonnie does 13 less than 4 times the number of somersaults Shishamango does, and Shishamango does 15 somersaults, how many somersaults do Starkey and Bonnie do combined?

A. 152 B. 199 C. 214 D. 303 E. NOTA

26. Which of the following is NOT divisible by 3?

A. 318762951572 C. 318762958362 E. NOTA
B. 318762955401 D. 318762958437

27. If $Z = 4$, $A = -2$, and $C = 3$, then evaluate: $-\frac{1}{10}(Z^2 + AC) + A^3$.

A. -9 B. $-\frac{41}{5}$ C. 0 D. 11 E. NOTA

28. Simplify: $\frac{7}{x+2} - \frac{3}{x^2-4}$; where $x \neq 2$ and $x \neq -2$.

A. $\frac{7x-17}{x^2-4}$ B. $\frac{7x-5}{x^2-4}$ C. $\frac{7x+11}{x^2-4}$ D. $\frac{7x-11}{x^2-4}$ E. NOTA

29. Which of the following describes the graph of $x = -2$ on the coordinate plane?

A. Passes through quadrants I and III.
B. Parallel to the x-axis.
C. Passes through the point $(-5, -2)$.
D. Passes through the origin.
E. NOTA

30. Evaluate: $5[4 - (3^2 \div (-2)^3)] - 6 \div 2 + 8$.

A. 1.5 B. 10 C. 30 D. 36.5 E. NOTA