

ALGEBRA I INDIVIDUAL TEST – WANDO MATH TOURNAMENT 2010

Note – NOTA (choice E) means none of the answers are correct

- 1) What is the slope of the line that passes through $(-2,3)$ and $(1,4)$?
- A) 1 B) -1 C) $\frac{1}{3}$ D) $-\frac{1}{3}$ E) NOTA
- 2) Identify the property of real numbers illustrated by $13(3+5) = 39 + 65$
- A) Associative B) Property of Zero C) Commutative D) Distributive E) NOTA
- 3) Solve for x in the following inequality: $|x-2| \geq -3$
- A) $x \geq 1$ and $x \leq 5$ B) All Reals C) No Solution
D) 3 E) NOTA
- 4) Simplify the expression $24 \div 3 + 1 - 4 \div \frac{1}{2} \cdot 8$
- A) -58 B) -55 C) -7 D) 8 E) NOTA
- 5) Sara has taken 5 tests and their average is 92. What is the lowest grade she can make on the next test and still have an average of at least 90?
- A) 75 B) 80 C) 82 D) 88 E) NOTA
- 6) Simplify $(5x^2 - 7x + 3) - (7x^2 - 3x + 5)$
- A) $-2x^2 - 4x + 8$ B) $-2x^2 - 10x - 2$ C) $x^2 + 2x + 1$ D) $-2x^2 - 4x - 2$ E) NOTA
- 7) Find the equation of the line containing the point $(5, 3)$ and parallel to the line $y = 2x - 4$.
- A) $2x + y = 7$ B) $2x + y = -7$ C) $2x - y = 7$ D) $2x - y = -7$ E) NOTA
- 8) Find the greatest common factor of $144x^{15}y^{12}z^7$ and $216x^{20}y^6$
- A) $36x^{15}y^6z$ B) $36x^{20}y^{12}z^7$ C) $72x^{15}y^6$ D) $72x^{20}y^{12}z^7$ E) NOTA

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9) Find the value of the expression $3x + 2y$ for the solution (x, y) of the system: $2x + y = 7$
 $3y - 8 = -x - 2$

- A) 11 B) 10 C) 4 D) -2 E) NOTA

10) Simplify the expression $10 - 8[5(-3 + 4x) - 3(7x - 8)]$

- A) $-2x - 78$ B) $-2x + 18$ C) $2x + 78$ D) $8x - 62$ E) NOTA

11) Find the sum of the integer solutions of $-9 \leq 2x - 1 \leq 5$.

- A) -15 B) -4 C) -3 D) 11 E) NOTA

12) Bob is one year older than Jennifer. In six years, Bob will be twice as old as Jennifer was 5 years ago. How old is Bob now?

- A) 14 B) 15 C) 16 D) 17 E) NOTA

13) If the area of a square can be represented by the expression $16x^2 - 24x + 9$, then what is the expression for the perimeter of this square?

- A) $16x - 12$ B) $16x^2 - 12x$ C) $4x - 3$ D) $8x - 6$ E) NOTA

14) What is the value of $\frac{x}{y}$ for the ordered pair (x, y) that is the solution of the system: $\frac{x + 2y}{xy} = \frac{11}{12}$?
 $\frac{2x + 3y}{xy} = \frac{2}{3}$

- A) $\frac{-17}{14}$ B) $\frac{-14}{17}$ C) $\frac{14}{17}$ D) $\frac{17}{14}$ E) NOTA

15) Find the sum of four consecutive odd integers if the sum of the first and third is 50.

- A) 100 B) 102 C) 104 D) 108 E) NOTA

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16) Simplify $\frac{180a^7b^{12}c^5}{225a^{10}b^6c}$

- A) $\frac{4b^6}{5a^3}$ B) $\frac{4a^3b^6}{5c^4}$ C) $\frac{2b^2c^5}{3a^3}$ D) $\frac{2b^6c^4}{3a^3}$ E) NOTA

17) What is the smallest coefficient of any variable term in the expanded and simplified product:

$(3x^2 - 2x - 5)(5x^2 + 4x - 2)$?

- A) -39 B) -24 C) -16 D) 2 E) NOTA

18) What is the square of the difference of the roots of $12x^2 + 5x = 4x + 6$?

- A) $\frac{1}{144}$ B) $\frac{17}{12}$ C) $\frac{1}{12}$ D) $\frac{289}{144}$ E) NOTA

19) How many times does the digit 4 appear in the page numbers of a book which has 150 pages?

- A) 33 B) 34 C) 35 D) 36 E) NOTA

20) If $a \# b = a^2 - \frac{a}{b}$, find the value of $(4) \# (3 \# 3)$.

- A) $\frac{31}{2}$ B) $\frac{46}{3}$ C) 15 D) 0 E) NOTA

21) Simplify the complex fraction: $\frac{\frac{x^2 - 25}{x^2 - 4x - 5}}{\frac{x^2 + 6x + 5}{2x^2 - 3x - 5}}$

- A) $\frac{x+1}{2x-5}$ B) $\frac{x+1}{2x+5}$ C) $\frac{2x-5}{x+1}$ D) $\frac{2x+5}{x+1}$ E) NOTA

22) Factor $12x^2 - 41x + 24$ into the form $(Ax + B)(Cx + D)$. What is the value of $A + B + C + D$? (HINT: $288 = 9 \bullet 32$)

- A) -4 B) 0 C) 2 D) 5 E) NOTA

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23) Find the y-intercept of the line which is perpendicular to $4x - 3y = 6$ and which passes through the x-intercept of $3x - 2y = -6$.

- A) $\frac{-3}{2}$ B) $\frac{-3}{4}$ C) $\frac{3}{4}$ D) $\frac{4}{3}$ E) NOTA

24) Solve for x: $32^{2x-1} = 4 \cdot 8^{3x+2}$

- A) -3 B) $\frac{-17}{13}$ C) 3 D) 13 E) NOTA

25) A certain linear function contains the points (2, -3), (5, -5), and (-1, -1). Find the equation for the inverse of this function.

- A) $2x - 3y = 12$ B) $2x + 3y = 5$ C) $3x - 2y = 7$ D) $3x + 2y = -5$ E) NOTA