Algebra I Individual
Tampa Bay Tech

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1. Solve the following equation for x. $-9(5x-4) = 7x + 3 - 2x$

A. $\frac{39}{50}$ B. $\frac{33}{50}$ C. $\frac{-39}{50}$ D. $\frac{-33}{50}$ E. NOTA

2. $\overline{AB}$ passes through points A(5,3) and B(-2,7). Find the equation in standard form of the perpendicular bisector of $\overline{AB}$.

A. $14x - 8y = -19$
B. $14x + 8y = -19$
C. $8x - 14y = -19$
D. $-14x + 8y = -19$
E. NOTA

3. If $a*b = 3b^2 - 2a$ then find $9*(4*2)$.

A. –18 B.29 C. 7038 D. 30 E. NOTA

4. Laura has two gold rings. One ring has a weight of 20 oz. and is 30% gold. The other ring has a weight of 30 oz and is 80% other non-gold alloys. If she melts the two rings and combines them to form a new thicker ring, what percent of the new object is non-gold alloys?

A. 24% B. 60% C. 40% D. 76% E.NOTA

5. Solve for all real values of x. $\sqrt{2x+4} = x+2$

A. {0,1} B. {0} C. {–2} D. {0,-2} E. NOTA

6. Solve for the sum of x and y in the following system of equations.

$$3x - 2y = 6$$
$$2x + 4y = 8$$

A. $\frac{7}{4}$ B. $\frac{-7}{4}$ C. $\frac{13}{4}$ D. 0 E. NOTA

7. Simplify $(x^{6k})^{\frac{1}{3}}$

A. x^{18k} B. x^{2k} C. x^2 D. x^k E. NOTA

8. $\overline{XY}$ has end points X(0,4) and Y(3,8). Find the equation in standard form of a line that is parallel to $\overline{XY}$ and passes through the origin.

A. $4x - 3y = 0$ B. $3x + 4y = 0$ C. $3x - 4y = 0$ D. $4x + 3y = 0$
E. NOTA

★ NOTA = none of the above

9. Simplify the following using only positive exponents. $\frac{x^{-2}y^{3}z^{-3}}{x^{-4}y^{-2}z^{3}}$

A. $\frac{y^5}{x^2z^6}$ B. $\frac{y}{x^{-2}}$ C. $\frac{x^2y^5}{z^6}$ D. $\frac{x^2}{y^{-5}z^6}$ E. NOTA

10. Solve for y in the following inequality. $3y - 2 > 7$

A. $y < 3$ B. $y > -3$ C. $y < 3$ D. $y > 3$ E. NOTA

11. If $A = 3x + 7$ and $B = x - 9$, find $\frac{A}{A \bullet B}$ (Assuming no denominator equals zero)

A. $\frac{3x+7}{4x-2}$ B. $\frac{1}{(x-9)}$ C. $\frac{1}{(x-3)}$ D. $x - 3$ E. NOTA

12. Find the slope of the line that passes through the points (4,3) and (47,23).

A. $\frac{20}{43}$ B. $\frac{-20}{43}$ C. $\frac{43}{20}$ D. $\frac{-43}{20}$ E. NOTA

13. Which of the following are (is) irrational?

I. π II. $243^{\frac{1}{5}}$ III.0.2563 IV. $\sqrt{5}$

A. I,II,III,IV B. I only C. III, IV only D. I, II, IV only
E. NOTA

14. Solve for k.

$$\frac{3k-4}{k+2} = \frac{1}{2}$$

A. $^3/_2$ B. $^{-5}/_2$ C. 2
D. $^5/_2$ E. NOTA

15. If a fair coin is tossed in the air 5 times and all five times the heads shows, what is the probability that tails will show up on the 6^{th} flip?

A. $\frac{1}{32}$ B. $\frac{1}{3}$ C $\frac{31}{32}$ D. $\frac{1}{2}$ E. NOTA

16. Find the determinant of the following matrix

$$\begin{bmatrix} 2 & 5 \\ -1 & 20 \end{bmatrix}$$

A. 35 B. 45 C. 40 D. –45 E. NOTA

17. Simplify: $(2x^2 - 8x + 5) - (-4x^2 - 2x + 4)$

A. $-2x^2 - 10x + 1$ B. $2x^2 + 10x - 1$ C. $6x^2 - 6x + 1$ D. $-6x^2 + 6x + 1$
E. NOTA

18. Assume x varies inversely as y and when x = 20 then y = 4. Find y when x = 80.

A. ½ B. 1 C. 15 D. 4 E. NOTA

19. What is the distance between the points (5,8) and (3,-2) on the Cartesian coordinate plane?

A. $2\sqrt{26}$ B. 10 C. $2\sqrt{30}$ D. 12 E. NOTA

20. Find ALL the values of x which make the expression $\frac{x-2}{x^2-4}$ undefined.

A. 0 B. 2 C. 2 and –2 D. –2, 0, and 2 E. NOTA

21. What is the mode of the following list?
{18, 82, 17, 18, 17, 52, 53, 18, 63}

A. 82 B. 17 C. 52 D. 18 E. NOTA

22. The sum of two numbers is 22. One of the numbers is one more than twice the other. Find the two numbers.

A. 11,11 B. 7, 15 C. 8, 14 D. 18, 4 E. NOTA

23. What is the degree of the monomial x^2yz^4?

A. 4 B. 5 C. 2 D. 7 E. NOTA

24. What is the remainder when $x^3 + 2x^2 + 4x + 8$ is divided by (x-3)?

A. 72 B. 8 C. 65 D. 19 E. NOTA

25. If $x^4 - y^4$ is *completely factored* which of the following is one of its factors?

A. $x^2 - y$ B. $x^2 + y$ C. $x^2 - y^2$ D. $x + y$ E. NOTA

26. Solve $|8 - 3x| < 5$.

A. $1 < x$ B. $x < {}^{13}/_{3}$ C. $1 < x < {}^{13}/_{3}$ D. $x < 1$ or $x > {}^{13}/_{3}$ E. NOTA

27. What is the product of all the exponents in the prime factorization of 2000?

A. 12 B. 15 C. 18 D. 24 E. NOTA

28. The graph of which of the following linear equations has a slope of $-\frac{5}{8}$?

A. $5x + 8y = 19$ B. $5x - 8y = 19$ C. $2x + 5y = 19$ D. $2x - 5y = 19$
E. NOTA

29. Simplify $(18x^2y)^{\frac{1}{2}} - (8x^2y)^{\frac{1}{2}} + (50x^2y)^{\frac{1}{2}}$

A. $6y\sqrt{2x}$ B. $6x\sqrt{2y}$ C. $6xy$ D. $\frac{6x}{y}$ E. NOTA

30. Which of the following is a root to $2x^2 - 8x - 10 = 0$?

A. 7 B. -5 C. 1 D. 5 E. NOTA