

E) NOTA means None Of The Answers

1. Solve for x: $\frac{x+3a}{a} - \frac{x-2a}{3b} - 5 = 0$

- A) $2a$ B) $2a^2$ C) $a-8ab$ D) $\frac{4(6ab-2a^2)}{2b-a}$ E) NOTA

2. If $8^x = 128$ then $x =$

- A) 2 B) $\frac{7}{3}$ C) 3 D) $\frac{5}{3}$ E) NOTA

3. Factor : $b^3 - 3b^2 + 4b - 12$

- A) $(b^2 + 4)(b + 3)$ B) $(b - 3)^2(b^2 + 4)$ C) $(b^2 + 4)(b - 3)$ D) $(b + 2)(b - 2)(b - 3)$ E) NOTA

4. Simplify: $\frac{\sqrt{3}}{\sqrt{6} + \sqrt{3}}$

- A) $\frac{\sqrt{2} + 1}{3}$ B) $\sqrt{2} - 1$ C) $\sqrt{2} + 1$ D) $\frac{1}{\sqrt{2} + 1}$ E) NOTA

5. Given two numbers, if you subtract one-third the smaller number from each number, the result with the larger number is four times as great as the result with the smaller number. How many times as large of the smaller number is the large number?

- A) 3 B) $\frac{7}{3}$ C) $\frac{1}{2}$ D) $\frac{1}{3}$ E) NOTA

6. Simplify: $\frac{[2(4^2 - 3^2)] + [6 + 4(1^2 - 6^0)]}{(2^3 \div 1^4) - [3^3 - 24]}$

- A) $\frac{24}{5}$ B) 4 C) $\frac{28}{33}$ D) -20 E) NOTA

7. The infinite repeating decimal .0525252... when expressed as a fraction is:

- A) $\frac{13}{25}$ B) $\frac{52}{99}$ C) $\frac{26}{495}$ D) $\frac{11}{38}$ E) NOTA

8. If $a^3b = a^3 - 3b$ for all integers, then $3^3(2^3) =$

- A) 4 B) 8 C) 12 D) 16 E) NOTA

9. The assignment was to reduce the given rational expressions, if possible. Steve tried them all but, which are right?

I. $\frac{x^2-4}{x+2} = x-2$ II. $\frac{2(x+y)}{2x+2y} = 1$ III. $\frac{(x+3)-x}{(x+3)(x-3)} = \frac{-x}{x-3}$

- A) I only B) II only C) II and III only D) I and II only E) NOTA

10. The slope of a line containing the points (7,12) AND (-4,8) is

- A) $\frac{4}{11}$ B) $\frac{-4}{11}$ C) $\frac{11}{4}$ D) $\frac{-11}{4}$ E) NOTA

11. Which of the 4 numbers listed is the smallest number?

- A) $\sqrt{5}$ B) $\frac{1}{5\sqrt{5}}$ C) $\frac{1}{\sqrt{5}}$ D) $\frac{\sqrt{5}}{5}$ E) NOTA

12. A stockbroker recommends that Mr. Holt invest in bonds and stocks at a ratio of 9:1, respectively. If Mr. Holt has \$37,000 to invest, how much should he invest in bonds? (Assume that Mr. Holt goes with the broker's recommendation.)

- A) 3700 B) 37000 C) 25000 D) 33300 E) NOTA

13. Megan has \$20 in dimes, quarters, and half-dollars. If she has 110 coins in all, and there are 2 fewer dimes than 6 times the half-dollars, how many quarters does she have?
- A) 28 B) 70 C) 12 D) 36 E) NOTA
14. Find the greatest common factor of 4320 and 1320
- A) 320 B) 120 C) 60 D) 10 E) NOTA
15. Write the equation of the line through the point (2,12) which is perpendicular to $2x + 8y = 5$.
- A) $4x - 3y = -28$ B) $4x - y = -4$ C) $3x - 4y = -42$ D) $x + y = 14$ E) NOTA
16. A survey of high school students' musical preference revealed the following data:
- | | | |
|---------------------------|---------------------------|--------------|
| 37 liked Ska | 62 liked Rap | 79 liked Pop |
| 12 liked only Rap and Pop | 11 liked only Ska and Pop | |
| 10 liked only Ska and Rap | 4 liked all three items | |
- How many students were surveyed? Assuming each liked at least one type music.
- A) 157 B) 135 C) 137 D) 142 E) NOTA
17. 16 is 0.5% of what number?
- A) 8 B) 320 C) 800 D) 3200 E) NOTA
18. Solve for x: $(4^2)(2^{x+2})(8^3) = 2^{15}$
- A) 2 B) 0 C) 1 D) -1 E) NOTA

19. If $(x+y)^2 = 60$ and $(x-y)^2 = 40$; find the value of $x^2 + xy + y^2$
- A) 100 B) 55 C) 50 D) 20 E) NOTA
20. Rationalize: $\frac{2+\sqrt{2}}{2-\sqrt{2}}$
- A) -1 B) $2+3\sqrt{2}$ C) $3+2\sqrt{2}$ D) $2-\sqrt{2}$ E) NOTA
21. Simplify: $\frac{x^2+5x+6}{x^2+5x+4} \cdot \frac{x+1}{x-1} \div \frac{x^2+x-6}{x^2+3x-4}$
- A) 1 B) $\frac{x+2}{x-2}$ C) $\frac{x-1}{x+2}$ D) $\frac{x+2}{x-1}$ E) NOTA
22. Give the domain of the relation: $\{1,1\}, \{0,2\}, \{2,4\}$
- A) $\{0,1,2,4\}$ B) $\{0,1,2\}$ C) $\{1,2,4\}$ D) $\{2,2,6\}$ E) NOTA
23. Given that 4 trims are in 1 foot and 2.5 feet are in 1 lope. How many square trims are in 1 square lope?
- A) 10 B) 20 C) 25 D) 100 E) NOTA
24. $4x+(2y+3) = 4x+(3+2y)$ is an example of the _____ axiom
- A) Associative B) Commutative C) Transitive D) Reflexive E) NOTA
25. If a boat crew can row 15 miles upstream in 3.5 hours and 10 miles downstream in 75 minutes, how fast is the current?
- A) 1.5 mph B) $1\frac{6}{7}$ mph C) 2 mph D) 2.4 mph E) NOTA

26. Simplify : $\sqrt[3]{1^{15}2^{12}4^98^616^0}$
- A) 2^{10} B) 2^{16} C) 2^{18} D) 2^{21} E) NOTA
27. A tank can be filled by one pipe in 20 minutes and drained by another in 28 minutes. How long will it take to fill the tank if the two pipes are opened at the same time.
- A) $1\frac{1}{6}$ hrs B) $5\frac{1}{7}$ hrs C) 48 hrs D) 70 hrs E) NOTA
28. Find the sum of the roots of the equation: $2x^3 + 8x^2 - 7x^5 + 5x - 4$
- A) $\frac{2}{7}$ B) $-\frac{2}{7}$ C) -4 D) 0 E) NOTA
29. Phillip's age is $\frac{3}{4}$ of Pedro's. Seven years ago Pedro was 19 years younger than twice Phillip's age. Find their present ages.
- A) Phillip 39, Pedro 52 B) Phillip 56, Pedro 42
- C) Phillip 32, Pedro 45 D) Phillip 84, Pedro 63
- E) NOTA
30. If the instructions said to "evaluate" which of the following could be an answer?
- A) $y = 2x$ B) $x = 12$ C) $x < -5$ D) 12 E) NOTA