

- Change $\frac{7}{16}$ to percent notation.
A. 0.4375% B. 4.375% C. 43.75% D. 437.5% E. None of these
- $(\frac{2}{5} + \frac{1}{4}) \div \frac{1}{5} =$
A. $\frac{5}{3}$ B. $\frac{3}{4}$ C. $\frac{1}{15}$ D. $\frac{13}{4}$ E. $\frac{13}{100}$
- The slope of a line passing through the two points (1, 3) and (3, -2) is
A. $\frac{1}{4}$ B. $\frac{1}{2}$ C. $-\frac{2}{5}$ D. -2 E. None of these
- $(\frac{1}{2}x - 5)^2 =$
A. $\frac{1}{4}x^2 + 5x - 25$ B. $\frac{1}{4}x^2 - 5x + 25$ C. $\frac{1}{4}x^2 - \frac{5}{2}x - 25$ D. $\frac{1}{4}x^2 - \frac{5}{2}x + 25$
E. None of these
- The slope of a line perpendicular to the line with the equation $3x - 5y + 4 = 0$ is
A. $-\frac{3}{5}$ B. $\frac{3}{5}$ C. $\frac{5}{3}$ D. $-\frac{5}{3}$ E. None of these
- Solve the inequality $3x - 7 > 5x + 6$.
A. $x < -\frac{13}{2}$ B. $x > -\frac{13}{2}$ C. $x < -\frac{1}{2}$ D. $x > -\frac{1}{2}$ E. None of these
- If y varies inversely as x and $y = 18$ when $x = 6$, find x when $y = 2$.
A. 54 B. $\frac{1}{54}$ C. $\frac{2}{3}$ D. $\frac{3}{2}$ E. None of these
- Simplify $(\frac{a^2b^{-3}}{a^{-3}b^2})^{-2}$.
A. $\frac{b}{a}$ B. $(\frac{a}{b})^2$ C. $(\frac{a}{b})^6$ D. $(\frac{b}{a})^{10}$ E. None of these
- Divide and simplify $\frac{x^2 - 2x + 1}{x^2 - 1} \div \frac{x^2 - 3x + 2}{x - 2}$.
A. $\frac{(x - 1)^2}{x + 1}$ B. $\frac{1}{x + 1}$ C. $\frac{x - 2}{(x + 1)(x + 2)}$ D. 1 E. None of these
- Which of the following is a factor of $x^3 + x^2 - ax^2 - ax$?
A. $x - a$ B. $x - 1$ C. x^2 D. ax E. None of these
- Combine terms and simplify: $12\sqrt{45} - 8\sqrt{80}$.
A. $-20\sqrt{5}$ B. $-4\sqrt{35}$ C. $4\sqrt{5}$ D. $8\sqrt{5}$ E. None of these
- Solve $A = \frac{1}{2}h(a + b)$ for h .
A. $h = \frac{a + b}{2A}$ B. $h = \frac{A}{2(a + b)}$ C. $\frac{2A}{a + b}$ D. $\frac{2(a + b)}{A}$ E. None of these
- Solve the system of equations for x : $3x + y = -1$, $x + 2y = 3$.
A. $x = -2$ B. $x = 2$ C. $x = 1$ D. $x = -1$ E. None of these
- Solve for x : $2x^2 - 3x = 2$.
A. $-\frac{1}{2}$, -2 B. $-\frac{3}{2}$, 2 C. $\frac{3}{2}$, 2 D. $\frac{1}{2}$, -2 E. None of these

15. Solve for x : $\frac{1}{x-4} - \frac{1}{x-2} = \frac{1}{4}$.
 A. $x = 4, x = 2$ B. $x = 0, x = 2$ C. $x = 0, x = 6$ D. $x = 6, x = 4$ E. None of these

16. Rationalize the denominator: $\frac{\sqrt{10}}{\sqrt{3x}}$.
 A. 10 B. $\frac{\sqrt{30x}}{9x^2}$ C. $\frac{\sqrt{30x}}{3x}$ D. $\frac{10}{3x}$ E. $\frac{\sqrt{10+3x}}{9x^2}$

17. One solution of $2x^2 + 2x - 1 = 0$ is
 A. $-1 - \sqrt{3}$ B. $-2 - \frac{1}{2}\sqrt{3}$ C. $-2 - \sqrt{3}$ D. $\frac{1}{2} - \frac{1}{2}\sqrt{3}$ E. $-\frac{1}{2} - \frac{1}{2}\sqrt{3}$

18. Express in terms of $\log x$, $\log y$ and $\log z$: $\log \sqrt{\frac{z^3}{xy}}$.
 A. $\left(\frac{3 \log z}{(\log x)(\log y)}\right)^{1/2}$ B. $\frac{3}{2} \log z - \frac{1}{2} \log x - \frac{1}{2} \log y$ C. $(3 \log z - \log x - \log y)^{1/2}$
 D. $\frac{1}{2} \frac{3 \log z}{(\log x)(\log y)}$ E. $\frac{3}{2} \log z - \frac{3}{2} \log x + \frac{3}{2} \log y$

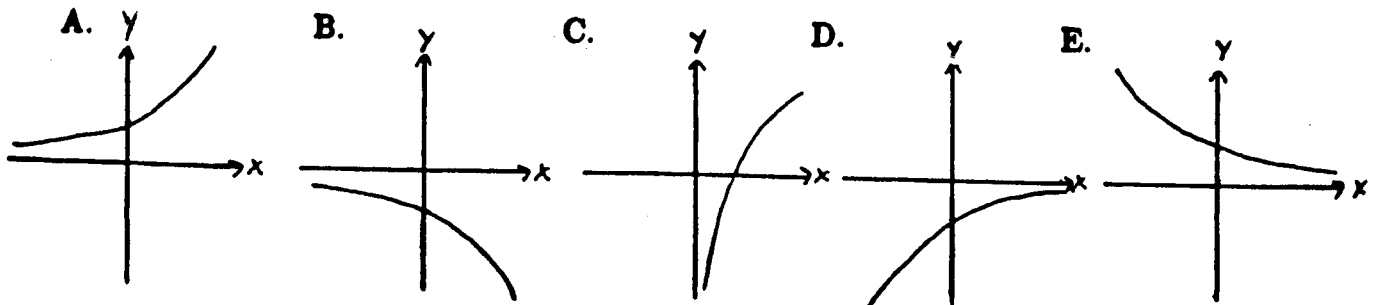
19. $(\frac{1}{8})^{-2/3} =$
 A. $\frac{1}{4}$ B. 4 C. $16\sqrt{2}$ D. $\frac{1}{16\sqrt{2}}$ E. None of these

20. Express as a single logarithm and simplify: $\log_a 7 - \log_a 20 + 2 \log_a 4$.
 A. $\log_a(\frac{28}{5})$ B. $\log_a 3$ C. $\log_a(\frac{7}{10})$ D. $\log_a 6$ E. None of these

21. $\log_2(\frac{1}{16}) =$
 A. $\frac{1}{4}$ B. $-\frac{1}{4}$ C. 4 D. -4 E. None of these

22. What is the y -intercept of the graph of $y = \log_3(x+1)$?
 A. 0 B. 3 C. $\frac{1}{3}$ D. 1 E. None of these

23. Which of the following looks most like the graph of $y = 2^{-x}$?



24. Solve for x : $\log_3 x = 2$.
 A. $x = 6$ B. $x = 9$ C. $x = 8$ D. $x = 2$ E. None of these

25. The sum of two positive numbers is $\frac{3}{2}$ and their difference is $\frac{1}{2}$. Find the smaller of the two numbers.
 A. $\frac{1}{2}$ B. $\frac{3}{2}$ C. 1 D. $\frac{1}{4}$ E. None of these
26. Bob is 25 years older than his daughter Jane. Three years ago, Bob was twice as old as Jane. What is Jane's present age?
 A. 26 B. 27 C. 22 D. 28 E. 25
27. Paul can paint a room in 5 hours. Sally can paint the same room in 3 hours. How long will it take for them to paint the room if they work together?
 A. 4 hours B. $1\frac{7}{8}$ hours C. 3 hours D. $\frac{8}{15}$ hours E. None of these
28. The base of a triangle is 5 inches less than its altitude. The area is 18 square inches. Find the base of the triangle.
 A. 9 inches B. 6 inches C. 4 inches D. 34 inches E. None of these
29. At 2:00 P.M. two cars start toward each other from towns 240 miles apart. If the rate of one car is 10 mph faster than the other, find the rate of the faster car if the two cars meet at 5:00 P.M.
 A. 45 mph B. 35 mph C. 40 mph D. 30 mph E. None of these
30. A stereo dealer marks up all his merchandise 55% over his cost. If he sells a radio for \$30.00, how much did he pay for it?
 A. \$16.50 B. \$24.55 C. \$19.35 D. \$13.50 E. \$20.69
31. Two investments are made totaling \$4800. Part of the money is invested at 8% and the rest at 9%. In the first year they yield \$412 in simple interest. How much money is invested at 8%?
 A. \$1820 B. \$2980 C. \$2600 D. \$2000 E. None of these

SOLUTIONS

1. C; 2. D; 3. E ($-\frac{5}{2}$); 4. B; 5. D; 6. A; 7. A; 8. D; 9. B; 10. A; 11. C; 12. C;
 13. D; 14. E ($-\frac{1}{2}, 2$); 15. C; 16. C; 17. E; 18. B; 19. B; 20. A; 21. D;
 22. A; 23. E; 24. B; 25. A; 26. D; 27. B; 28. C; 29. A; 30. C; 31. D.