

MAT 0024 College Prep Algebra Sample Final Exam

1. Which of the following is a true statement?

[A] $|-7| < |4|$ [B] $|-7| < |7|$ [C] $0 > |-4|$ [D] $|-7| > |4|$

2. Solve: $x^2 - 3x = 0$ [A] 3, -3 [B] 0, -3 [C] 3, -4 [D] 0, 3

3. Write as a fraction and simplify 6^{-2} . [A] $-\frac{1}{36}$ [B] $\frac{1}{12}$ [C] $-\frac{1}{12}$ [D] $\frac{1}{36}$

Solve:

4. $3x^2 + 10x = 25$ [A] $-5, \frac{5}{3}$ [B] $5, -\frac{3}{5}$ [C] $-5, \frac{3}{5}$ [D] $5, -\frac{5}{3}$

5. $6 = 6(x + 7) + 5x$ [A] $\frac{1}{11}$ [B] $3\frac{3}{11}$ [C] $-3\frac{3}{11}$ [D] $-\frac{1}{11}$

6. Factor: $4x^3 - 4x^2 + 12x$

[A] $4(x^3 - x^2 + 3x)$ [B] $x(4x^2 - 4x + 12)$ [C] $4x(x - 1)(x + 3)$ [D] $4x(x^2 - x + 3)$

7. Divide: $\frac{3x^3 + 3x + 2}{x - 3}$

[A] $3x^2 + 9x + 30 + \frac{92}{x - 3}$ [B] $3x^2 + 12x + 38 + \frac{114}{x - 3}$

[C] $3x^2 + 9x - 24 - \frac{67}{x - 3}$ [D] $3x^2 + 12x - 36 - \frac{106}{x - 3}$

8. Factor: $x^2 - 4x + 4$ [A] $(x - 2)(x + 2)$ [B] $(x - 2)^2$ [C] $(x - 4)^2$ [D] $(x + 2)^2$

9. Write in decimal notation: 4.88×10^{-1} [A] 0.488 [B] 48.8 [C] 4.88 [D] 0.0488

10. Simplify: $(5x^5)^3$ [A] $15x^8$ [B] $125x^{15}$ [C] $15x^{15}$ [D] $125x^8$

11. Subtract: $(-x^2 + 4x - 6) - (4x^2 - 5x + 3)$

[A] $-5x^2 - 9x - 9$ [B] $-5x^2 + 9x - 3$ [C] $-5x^2 - x - 3$ [D] $-5x^2 + 9x - 9$

12. Simplify: $\sqrt{\frac{81}{100}}$ [A] $\frac{9}{50}$ [B] $\frac{9}{100}$ [C] $\frac{9}{10}$ [D] $\frac{11}{12}$

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13. Solve: $6 - x > 2$ [A] $x < 4$ [B] $x > 4$ [C] $x < 8$ [D] $x > 8$

14. Simplify: $\frac{16x^7}{8x^{-4}}$ [A] $2x^{11}$ [B] $\frac{2}{x^{11}}$ [C] $\frac{2}{x^3}$ [D] $2x^3$

15. Multiply: $\frac{x-1}{2x-y} \cdot \frac{4x^2-y^2}{3x^2+2x-5}$ [A] $\frac{2x-y}{8x+2}$ [B] $\frac{2x+y}{3x+5}$ [C] $\frac{2x^2+y^2}{3x+5}$ [D] $\frac{2x+y}{8}$

16. Evaluate: $\sqrt{225}$ [A] 225 [B] -225 [C] 15 [D] -15

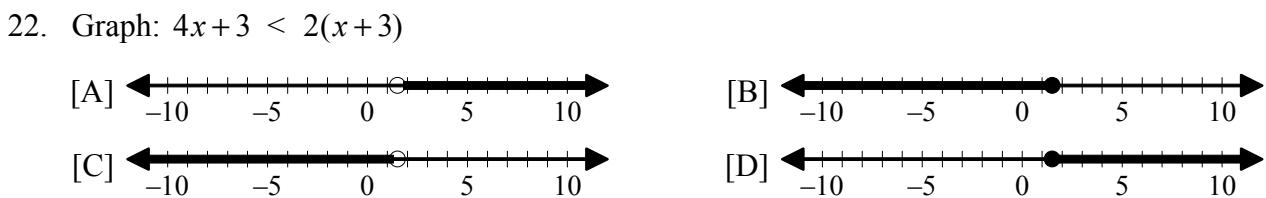
17. Find the product and completely simplify the radical: $\sqrt{12} \sqrt{10}$
 [A] $3\sqrt{20}$ [B] $2\sqrt{30}$ [C] $4\sqrt{30}$ [D] $\sqrt{120}$

18. Give the x - and y -intercepts of $y = -3x - 6$.
 [A] x -intercept: -2 ; y -intercept: -6 [B] x -intercept: -6 ; y -intercept: -2
 [C] x -intercept: -3 ; y -intercept: -6 [D] x -intercept: -6 ; y -intercept: -3

19. Multiply: $(4x + 6y)^2$
 [A] $16x^2 + 48xy + 36y^2$ [B] $16x^2 + 36y^2$ [C] $16x^2 + 24xy + 36y^2$ [D] $16x^2 + 20xy + 36y^2$

20. Factor completely: $x^2 - 6x - 7$
 [A] $(x-1)(x+7)$ [B] $(x+1)(x-7)$ [C] $(x+1)(x+7)$ [D] $(x-1)(x-7)$

21. Factor: $14d^2 + 5d - 6$
 [A] $(7d+6)(2d-1)$ [B] $(7d-6)(2d-1)$ [C] $(7d-6)(2d+1)$ [D] $(7d+6)(2d+1)$



23. For the equation $x + y = 1$, find the value of x in the ordered pair $(x, 3)$.
 [A] 2 [B] -4 [C] 4 [D] -2

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Simplify:

24. $\sqrt{50} + \sqrt{72}$ [A] $\sqrt{122}$ [B] $56\sqrt{2}$ [C] $11\sqrt{2}$ [D] $2\sqrt{11}$

25. $(2tu^6)^4(tu)^4$ [A] $16t^8u^{10}$ [B] $16t^8u^{28}$ [C] $2t^5u^{28}$ [D] $2t^8u^{28}$

26. Multiply: $(3x+2)(3x-4)$

[A] $9x^2 + 6x - 8$ [B] $9x^2 - 18x - 8$ [C] $9x^2 - 6x - 8$ [D] $9x^2 - 6x + 8$

27. Reduce to lowest terms: $\frac{x^2 - 2x - 63}{x^2 - 49}$ [A] $\frac{x-9}{x-7}$ [B] $\frac{x+9}{x+7}$ [C] $\frac{x+7}{x+9}$ [D] $\frac{2x+63}{49}$

28. What is the y -intercept of the line $3x - 2y = -6$? [A] 3 [B] -3 [C] -2 [D] 2

29. Solve: $4x + 5 = x + 1$ [A] $-\frac{3}{4}$ [B] $\frac{4}{3}$ [C] -1 [D] $-\frac{4}{3}$

30. Subtract: $-14 - 15$ [A] 29 [B] 1 [C] -29 [D] -1

31. Simplify: $\sqrt[3]{-125}$ [A] Not a real number. [B] -15 [C] 5 [D] -5

32. Find the product: $(-6)(1)(2)$ [A] 3 [B] -12 [C] 12 [D] -3

33. Factor: $3x^3 + 3x^2 + x + 1$

[A] $(x+1)(3x^2+1)$ [B] $(x+3)(3x^2-1)$ [C] $x(3x^2+x+1)$ [D] $3x^2(x+1)$

Multiply:

34. $(-5x^3y^2)(4x^4y^2)$ [A] $20x^3y^2$ [B] $20x^7y^4$ [C] $-20x^7y^4$ [D] $-20x^{12}y^4$

35. $(5d+7)(5d-7)$

[A] $25d^2 + 49$ [B] $25d^2 - 70d + 49$ [C] $25d^2 - 49$ [D] $25d^2 - 70d - 49$

36. $(x+2)(x+9)$ [A] $x^2 + 11x + 18$ [B] $x^2 + 18x + 11$ [C] $x^2 + 18x + 18$ [D] $x^2 + 18$

37. Simplify: $\frac{-45x^7y^2}{-9xy^4}$ [A] $-\frac{5x^6}{y^2}$ [B] $\frac{5x^6}{y^2}$ [C] $\frac{x^6}{5y^2}$ [D] $\frac{5x^8}{y^6}$

38. Solve: $\frac{x}{7} - \frac{x}{8} = 1$ [A] 56 [B] 7 [C] $\frac{8}{7}$ [D] $\frac{7}{8}$

Simplify:

39. $\sqrt{108}$ [A] $6\sqrt{3}$ [B] $27\sqrt{2}$ [C] $3\sqrt{3}$ [D] $12\sqrt{3}$

40. $\sqrt{\frac{200}{49}}$ [A] $2\sqrt{10}$ [B] $\frac{20}{7}$ [C] $\frac{10\sqrt{2}}{7}$ [D] $\frac{200}{49}$

41. A rectangle is 3.9 inches long and 1.9 inches wide. Find its perimeter.

[A] 11.6 in. [B] 5.8 in. [C] 7.41 in.^2 [D] 74.1 in.^2

42. Simplify: $7\sqrt{7} + 9\sqrt{7} - 5\sqrt{7}$ [A] $11\sqrt{7}$ [B] 77 [C] $\sqrt{77}$ [D] $21\sqrt{7}$

43. Factor: $2x^2y^2 - 128$

[A] $(xy - 8)(2xy + 16)$ [B] $-4(x^2y^2 + 64)$ [C] $2(xy - 8)^2$ [D] $2(xy - 8)(xy + 8)$

44. Express in scientific notation: 0.00000016

[A] 1.6×10^{-7} [B] 16×10^{-6} [C] 1.6×10^{-5} [D] 1.6×10^{-6}

45. Factor: $2x^2 - 2x - 12$

[A] $(x + 3)(x + 2)$ [B] $2(x + 3)(x + 2)$ [C] $(x - 3)(x + 2)$ [D] $2(x - 3)(x + 2)$

46. Simplify: $2y + 1 + 4x + 3y - (-7x)$

[A] $11x + y - 1$ [B] $11x + 5y + 1$ [C] $-3x + y + 1$ [D] $-3x + 5y - 1$