

Exam 1 Practice Show-Your-Work Problems

SHOW YOUR WORK

For this portion of the exam you will be graded on the work that you show to solve the problem. If you do not show any work, you will not be given any credit. If you use your calculator for any part of a problem, you must write down your steps/graphs and how you arrived at your answer based on this information.

Here are several problems that may be similar to what will appear on the handwritten, show-your-work portion of the first exam. You should attempt to write out complete solutions to these problems a separate piece of paper.

Simplify the following expressions completely.

1. $40 - 3^2 - 2^3$

4. $\frac{10-6^2}{9^2+3^2}$

6. $\frac{3(6-7)-5 \cdot 4}{6 \cdot 7-8(4-1)}$

2. $5^3 + 26 \cdot 71 - (16 + 25 \cdot 3)$

3. $4^3 + 10 \cdot 20 + 8^2 - 23$

5. $\frac{5^2-4^3-3^0}{9^2-2^2-1^4}$

Solve the following equations for x.

7. $3(x - 2) + 7 = 2(x + 5)$

10. $\frac{x}{5} = \frac{x}{6} + 1$

12. $2 \left| 4 - \frac{5}{2}x \right| + 6 = 18$

8. $2(x - 1) + 3 = x - 3(x + 1)$

11. $\frac{x+3}{4} = 2 - \frac{x+2}{7}$

13. $|x + 1| + 5 = 3$

9. $\frac{x}{3} = \frac{x}{2} - 2$

14. $8|x - 2| + 7 = 15$

Write the equations of the lines described below in both point-slope form and slope-intercept form. Then sketch a graph of the lines.

15. Slope = 8, passing through the point (4,-1)

16. Slope = -3, passing through the point (-2,3)

17. $6x - 9y - 18 = 0$ (**just find the slope-intercept form**)

18. Passing through (-2,-7) and parallel to the line whose equation is $y = -5x + 4$

19. Passing through (2,-3) and perpendicular to the line whose equation is $y = \frac{1}{5}x + 6$

Solve the following inequalities for x. Write your answers in interval notation and sketch your answers on a number line.

20. $2x + 5 < 7$

22. $-3|x + 7| \geq -27$

21. $8x - 2 \geq 14$

23. $-2|5 - x| < -6$

Simplify the following expressions.

24. $\sqrt{18}$

25. $\sqrt[3]{125}$

26. $\sqrt{50x^5}$

27. $\frac{\sqrt[3]{256x^4}}{\sqrt[3]{4x}}$

Evaluate and simplify the following expressions. Be sure to write your answer with positive exponents.

28. $729^{2/3}$

32. $x^{-6}y$

36. $(-4x^4y)(-2x^9y^8)$

29. $81^{-3/4}$

33. $x^{-4} \cdot x^6$

37. $(7y^4)^2$

30. $\frac{7^2}{7^4}$

34. $(x^{-7})^5$

38. $\frac{4x^5y^8}{(2x^2y)^3}$

31. $a^5 \cdot a^2$

35. $\frac{x^5}{x^{-4}}$

Multiply and simplify.

39. $(6x^3)(4x^9)$

42. $(x - 14)(x + 4)$

45. $(3x + 5)(3x - 5)$

40. $5x(-x + 1)$

43. $(2x - 3)(6x + 7)$

46. $(x + 11)^2$

41. $2x(8x^2 - 2x + 4)$

44. $(7x^3 + 6)(x^2 - 2)$

47. $(x - 3)(x^2 + 3x + 9)$