

Evaluate the following expressions. Show all steps and circle your answers.

1. $9 - 3 \cdot 2 + 1 \div 2$

2. $20 + 4(5 + 2^3)$

3. $2[3(4 \div 2) + 6] - 5$

4. $8 \div 2(3) - 5(4 - 7)$

Use the given values to evaluate each expression. Show all steps and circle your answers.

5. $9x^2 - x \div 2: x = 6$

6. $12 \div (5x - y): x = 3 \text{ and } y = -1$

7. $72m + 15 - m^3: m = -2$

8. $-5x^2 + 3x + 8: x = 3$

9. $x^2 - y: x = -4 \text{ and } y = -5$

10. $x^3 - y^2: x = -4 \text{ and } y = -5$

Evaluate each function for the given value. Show all work and circle your answer.

11. $f(x) = 3x + 4$: $x = -5$

12. $g(x) = -2x - 5$: $x = 3$

13. $h(x) = \frac{2}{3}x + 10$: $x = 18$

14. $p(x) = -x^2 + 10x - 8$: $x = -4$

15. Which of the values $[-7, -6, 6, 7]$ are solutions to the equation $k^2 - k + 2 = 44$? Check them all!

16. Is $w = 10$ a solution to the inequality $23 - 3w \geq 4w - 50$? Explain.

Simplify each expression. Show all steps and circle your answer.

17. $3x - (-45) + 8x - 20$

18. $-6y(y - 1) + y^2$

19. $3m^2 - 2(m + 2m^2)$

20. $x^2 - (4 - x^2)$

21. $\frac{-35 - 15x}{5}$

22. $\frac{42y - 49}{14}$

23. $\frac{30 - 21d}{-3}$

24. $3x(2 - x) - x(4 - x)$

25. $x(x - y) - y(y - x)$

Solve each equation. Show all steps and circle your solution.

26. $21 = 5 - \frac{1}{4}x$

27. $\frac{2}{3}x + 8 = 32$

28. $6 = 2.5x - 9$

29. $\frac{1}{2}x = \frac{1}{3}x + 8$

30. $0.02m - 2.6 = 0.84$

31. $-.3d + .34 = 1.01 - .25d$

32. $5k - 7(3 - 2k) = 36$

33. $-5(4 - x) = 10(x - 6)$

34. $6 + 4(-3x - 5) = -16$

35. $6y - (3y - 6) = -14 + 5y$

36. $-2(17 + 5n) = 5(5n - 11)$

37. $\frac{2}{3}(24t - 9) = 8t + 22$

Determine the slope of the line containing the two points and describe the line as increasing, decreasing, horizontal, or vertical.

38. (3, 4) and (-9, 20)

39. (5, -7) and (5, 3)

40. (6, -9) and (4, -4)

41. (9, -5) and (-1, -1)

42. (8, -4) and (13, -4)

43. $(-1\frac{1}{2}, -\frac{1}{2})$ and (0, 2)

Write the equation of the line with the given information in slope-intercept form and also in standard form with integer coefficients. Show all work.

44. Slope of -2 and Passes through (-6, 8)

S-Int: _____

Stand: _____

45. Passes through (3, 2) and (1, -2)

S-Int: _____

Stand: _____

46. Parallel to $-2x+5y=10$ and Passes through $(-15, 20)$

S-Int: _____

Stand: _____

47. Parallel to $2x+3y=9$ and Passes through $(3,-1)$

S-Int: _____

Stand: _____

48. Sketch the graph of $y = -\frac{2}{3}x + 2$ labeling at least 3 points.

49. Sketch the graph of $-3x+4y=-24$ using intercepts.

50. A local health club charges each nonmember \$13.75 per visit. If you purchase a monthly membership pass for \$39.95, the cost of the visit is lowered to \$10. How many times per month must you visit the health club to justify buying the monthly pass? Make sure to identify all information, define a variable, write and solve an equation, and answer the question in a complete sentence.

51. Ms. Hossler bought a computer in 2008 for \$2000. The value of a computer depreciates by about \$250 per year.

A. Write a model that can be used to determine the value of Ms. Hossler's computer. Be sure to explain your model.

B. Explain what the slope and "y-intercept" stand for in this situation.

C. Use your model to determine the value of Ms. Hossler's computer if she is planning to sell it in 2013.

52. Your father planted a tree in your backyard when you were born. When you were 5 years old, your dad measured the tree and it was 8 feet, 10 inches tall. You measured it again when you were 12 years old and the tree was 13 feet, 6 inches tall.
- A. Write a model that can be used to determine the height of the tree based on your age. Be sure to explain your model.
- B. Explain what the slope and "y-intercept" stand for in this situation.
- C. Use your model to determine how old you will be when the tree reaches a height of 40 feet.

Solve each inequality and graph the solution(s).

53. $-4 - 3x \leq -19$

54. $8x - 10x + 8 < -2(5 + x)$