

ALGEBRA 2 SUMMER 2023 ASSIGNMENT:

We will be getting a new Algebra 2 book for the 2023-2024 school year. It is by SAVVAS LEARNING COMPANY. We are waiting for the updated version, so the books and online version, will be available in August.

Attached are some practice problems from Algebra 1, that you should be familiar with before you enter Algebra 2. Students will turn in this assignment the first week of school and they will be tested on the material from the assignment.

Graphing Calculator – Required for this course, is the TI-84 Plus CE. (older Ti-84 calculators do not have all the features in the Plus CE, but may be used).

The TI-Nspire has additional features which are not necessary any high school math course and it not the model used for this course.

PRACTICE PROBLEMS:

Find each product.

1. $(x + 7)(x - 4)$

2. $(2x - 5)(2x + 5)$

3. $(3x + 4)(x + 5)$

4. $(x - 9)(2x + 10)$

5. $(1 + 3x)(5x - 4)$

6. $(2x + 3)(5x + 1)$

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

8. $(2x + 9)^2$

9. $-(x - 1)(3x + 4)$

10. $4(3x - 2)^2$

11. $(2w - 17)(w + 2)$

12. $(x + 7)(x - 4)$

Factor each polynomial.

13. $14x^2 + 4x$

14. $6x^2y + 2x$

15. $7ab^2 - 14ab$

16. $x^2 + 5x + 4$

17. $x^2 - 6x + 5$

18. $x^2 - 4x - 5$

19. $x^2 - 8x - 48$

20. $5x^2 - 13x - 6$

21. $3x^2 + 14x - 5$

22. $11x^2 - 78x - 7$

23. $9a^2 - 24a + 16$

24. $6a^2 - 50ab + 16b^2$

25. $y^2 - 144$

26. $4x^2 - 9$

27. $x^2 + 25$

28. $16a^2 - 1$

29. $x^3 + 2x^2y - 4x - 8y$

30. $5a^2 + 10ab - 3a - 6b$

31. $9x^3 + 9x^2y - x - y$

32. $4x^2 - 17x - 15$

Solve by factoring.

33. $x^2 - 9x - 10 = 0$

34. $4y^2 + 7y - 2 = 0$

35. $6x^2 - 30x = 0$

36. $25x^2 - 49 = 0$

Solve each equation or inequality.

37. $8 + 5x = -32$

38. $4p + 10 = 6p - 13$

39. $\frac{x}{6} + \frac{x}{3} = \frac{3}{4}$

40. $6b - 5 = 3(b + 2)$

41. $\frac{x}{5} - 8 > 3$

42. $-b - 13 < 3(5 + 4b) - 2$

Find the slope.

43. $(6, -3), (2, 5)$

44. $(8, 2), (2, 8)$

45. Rewrite the equation $6x + 4y = 12$ in slope-intercept form.

46. State the slope and the y-intercept of the equation $2y - 4x = 14$.

47. Write an equation in slope-intercept form for the line that has a slope of -2 and passes through (-3, -5).

48. Write an equation in slope-intercept form for the line that passes through (-2, 4) and (0, 8).

49. Write an equation in slope-intercept form for the line through (1, 2) and is parallel to $y = 4x - 3$.

50. Write an equation in slope-intercept form for the line through (-3, 5) and is perpendicular to $y = \frac{2}{3}x - 8$.

Solve the system of equations by graphing, substitution, or elimination.

51. $3x + 4y = 8$

$$x - 3y = -6$$

52. $6x - 14y = 5$

$$3x - 7y = 5$$

53. $2x + 5y = -8$

$$4x - 2y = 0$$

54. $y - 3x = 13$

$$y = \frac{1}{3}x + 5$$

55. Andrew and Pete each mow lawns. Andrew charges a \$30 service fee and \$10 per hour. Pete charges a \$10 service fee and \$15 per hour. After how many hours will Andrew and Paul charge the same amount?

56. The difference of three times a number and a second number is two. The sum of the two numbers is fourteen. What are the two numbers?

Simplify each expression. Assume no denominator equals zero.

57. $(2xy^2)^3(2x^2y^3z)$

58. $(5ab^2c^5)(3ad^2)^2$

59. $\frac{3m^5n^3p^4}{12m^6n^4p^2q^7}$

60. $\frac{15a^{-1}b^{-2}c^3}{3a^2b^3c^4d^{-5}}$

61. $\left(\frac{4x^{-2}y^4z^5}{20x^5y^{-3}z^{-2}}\right)^{-1}$

62. $\left(\frac{a^2yc^3}{2ay^3c^3}\right)^3$

Simplify the radicals.

63. $\sqrt{72}$

64. $\sqrt[4]{\frac{81}{625}}$

65. $64^{\frac{1}{3}}$

66. $3\sqrt{24a^5b^{10}c^7}$

Simplify each expression.

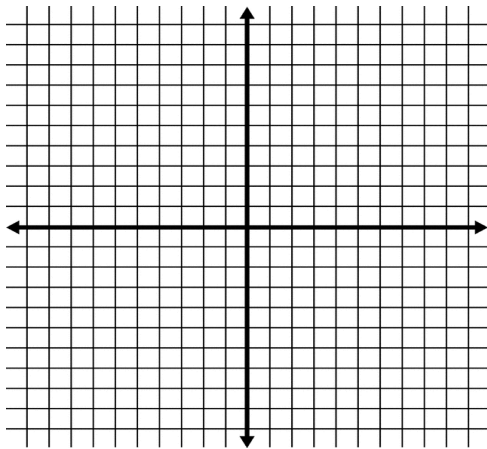
67. $\frac{\sqrt{6}}{2+\sqrt{3}}$

68. $(3\sqrt{6} + 2\sqrt{4})(5\sqrt{2} - 4\sqrt{3})$

Graph each equation.

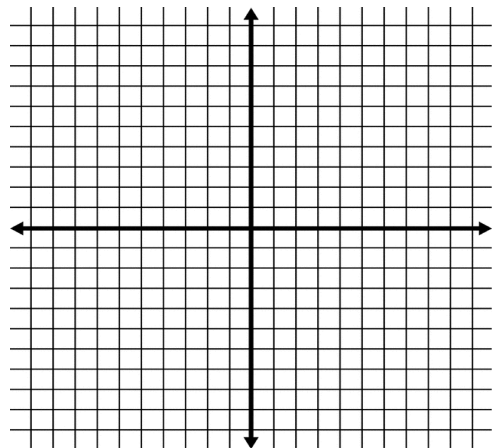
69. $2x - 3y = 12$

(label slope and y-intercept)



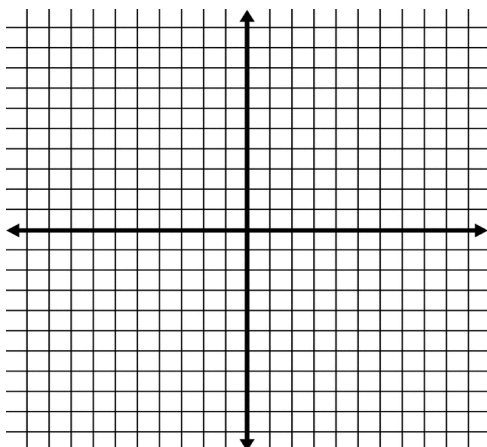
70. $y = 4x^2 + 8x - 5$

(label vertex and axis of symmetry)



71. $y = -x^2 + 3x + 5$

(label vertex and axis of symmetry)



72. $y = (x - 4)^2 + 3$

(label vertex and axis of symmetry)

