

ADVANCED ALGEBRA HONORS

Summer Work Packet

This packet contains material that the student should be familiar and proficient in to ensure their success in Adv Algebra Honors.

Calculators should not be used to complete the problems since the objective is to test comprehension of the subject matter.

This packet is to be handed in on the first day of class.

SHOW ALL WORK!!!

A: Fractions

Simplify the problem.

1. $(8 + \frac{1}{3} - 6 * 2) \div \frac{5}{6}$

2. $\frac{1}{2}(\frac{4}{5} - \frac{3}{10} + \frac{1}{2})$

3. $\frac{\frac{2}{3} + \frac{1}{2}}{\frac{1}{4}(2)}$

4. $\frac{\frac{5}{2} + \frac{3}{4} + \frac{1}{8}}{27}$

5. $\frac{\frac{1}{3} + 3}{\frac{5}{6}}$

6. $\frac{-2}{3} * \frac{1}{4} - \frac{5}{4} + 2$

B: Simplifying expressions

Combine all like terms and give the answer in the simplest form

7.
$$\frac{50x^2 + 10x - 5}{-5}$$

8. $7(x + y) - 4(2x + 2y - 2)$

9. $5x(x + 4) + 3x^2$

10. $-2x - 9(-3x + 7)$

11. $2[(3 + 2 * 4) - 3] - 4$

12. $100/10 * 3 - 12 * 2$

C: Exponents and Radicals

Simplify the radical as much as possible

13. $\sqrt{50}\sqrt{2}$

14. $\frac{x^3 y * 3x^2 y}{3x^5 y}$

15. $\sqrt{\frac{25b^2}{c^2}}$

16. $(x^{\frac{1}{3}})^5 (x^{\frac{1}{2}})$

17. $49^{\frac{1}{2}}$

18. $\sqrt{x^7}\sqrt{y^8}$

D: Solving Equations

Solve equation and check your answers

19. $6x - 4 = 5x + 7$

20. $4(x - 6) = 2x + 6$

21. $12x + 7 = 5(x - 4)$

22. $\frac{1}{3}x + \frac{1}{2}x + 4 = x + 2$

23. $\frac{x+7}{3} + \frac{x-1}{2} = 0$

24. $\frac{1}{4}c + \frac{3}{4} = 2c - \frac{1}{3}$

E: Solving Inequalities

Solve inequalities and check your answers

25. $7 - 5x > 22$

26. $3x - 14 > 5x + 4$

27. $6(x + 2) < 11 - 4x$

28. $-4x - 5 < 11$

29. $-7 + 5x < 2x - 4$

30. $\frac{1+y}{2} \leq \frac{3}{4}$

F: Linear Equations

Find the slope and the y-intercept in questions 31 and 32.

31. $y = 4x - 5$

32. $4x - 2y = 12$

Find the slope of the line containing the following points.

33. A (4, 9) B (12, 23)

Find the slope of the line parallel to the line containing the following points.

34. A (3, 7) (9, 5)

Find the slope of the line perpendicular to the line containing the following points.

35. A (4, 7) B (8, 12)

Find the equation of the line given the following points.

36. A (3, 8) B (5, 11)

G: Quadratic Equations

Solve by factoring or using the quadratic formula

37. $x^2 = 25$

38. $x^2 - 4x + 5 = 0$

39. $(x - 3)(x + 4) = 0$

40. $4x^2 - 8x - 5 = 0$

41. $-2x^2 - 12x - 13 = 0$

42. $x^2 + 10x + 8 = 0$

H: Multiplying Binomials

Multiply and simplify (FOIL)

43. $(5x + 4)(x - 6)$

44. $(3x - 6)(4x + 5)$

45. $(x - 7)(x + 7)$

46. $(4x - 4)^2$

47. $(3x + 4y)^2$

48. $(7x + 6)(4x - 3)$

I: Factoring Polynomials

Factor each expression completely

49. $x^2 - 6x + 9$

50. $4x^2 - 64$

51. $x^3 - x^2 + 2x$

52. $3x^2 - 7x - 6$

53. $-6x^3 - 18x^2 + 12$

54. $4a^4b^2 + 8a^3b^3 - 4ab$

J: Relations & Functions : Domain & Range

For each relation list the domain and range. State whether the relation is a function.

55. $(1, 3) (3, 6) (6, 9) (9, 12)$

56. $(-2, 0) (5, 0) (7, 0) (8, 0) (21, 0)$

57. $(-3, -4) (-2, 6) (0, 3) (1, 9) (-2, 3)$

58. $(4, 4) (5, 5) (6, 6) (7, 7) (8, 8) (9, 9) (10, 10)$

59. $y = 5x - 7$

60. $y^2 = x^2 - 2$