

Algebra 2 Honors

Summer Assignment

Due Date: First Day of School

Complete all exercises neatly showing all work. This will be graded and count as the first TEST GRADE of the marking period. All answers must be supported by your work. Late assignments will not be accepted.

Algebra 2 Honors Summer Assignment**Evaluate.**

1. $|6| + 2x - (-7)$ when $x = -5$
2. $\frac{2-7x}{x-1}$ when $x = 6$
3. Graph the function $y = 2(x + 1)$ with the domain $x = 0, 1, 2, 3, 4,$ and 5 .

Solve.

4. $5 + 3(m + 4) = 50$
5. $8 - 6r = 4r + 1$
6. $\frac{15}{y} = \frac{12}{y-2}$
7. $2|2x - 5| = 18$
8. $3x^2 - 4x - 7 = 0$
9. $p = \sqrt{-3p + 18}$
10. After an 6% increase in your wages, you receive \$.57 more per hour. About how much did you receive per hour before the increase in your wages?

Solve for the indicated variable.

11. $S = 2B + Ph, B$

Graph.

12. $5x - 2y = 10$

13. An adult human body contains about 75,000,000,000,000 cells. Each is about 0.001 inch wide. If the cells were laid end to end to form a chain, about how long would the chain be in miles? Give your answer in scientific notation.

14. Decide whether the graphs of the two equations are parallel lines.

$$y = 0.5x - 4$$

$$x - 2y = 4$$

15. Evaluate the function $f(x) = -\frac{3}{5}x + 2$ when $x = 3$, $x = 0$, and $x = -4$.

Write an equation of the line that passes through the given point and has the given slope. Write the equation in slope-intercept form.

16. $(-5, -6)$, $m = -3$

Graph the line that passes through the points. Then write an equation of the line in slope-intercept form.

17. $(-5, 2)$, $(2, 4)$

18. Write an equation of a line that is perpendicular to $y = 3x - 5$ and passes through $(-6, 0)$.

19. Maria needs \$2.35 to buy a magazine. The only money she has is a jar of nickels and dimes. Write an equation in standard form for the different amounts of nickels x and dimes y she could use.

Solve the inequality. Graph the solution on a number line.

20. $3x + 5 \leq 2x - 1$

Solve the inequality. Write a sentence that describes the solution.

21. $-15 \leq 5x < 20$

Use the substitution method to solve the linear system.

22. $3x + y = 8$

$$4x + 6y = 6$$

Solve the linear system using elimination.

23. $3x + 5y = -10$
 $-x + 2y = 18$

Graph the system of linear inequalities.

24. $x \geq 5$
 $y \geq -3$
 $y \geq 2x - 6$

Simplify.

25. $(-3x^2)^3 \cdot (-4x^5)$

26. $y^8 \cdot \left(\frac{4}{y^2}\right)^4$

27. $(3x^{-1}y^2)^{-2}$

28. $(2t^2 - 5t) + (-t^2 + t - 7)$

29. $(5 - \sqrt{3})(2 + \sqrt{3})$

30. You started a savings account in 2004. The balance A is given by $A = 500(1.05)^t$, where $t = 0$ represents the year 2004. What is the balance in 2008?

Find the product.

31. $(3x - 1)(-x^2 + 4x + 2)$

Name: _____

ID: A

Solve the equation by factoring.

32. $b^2 + 9 = 16b - 39$

33. $16x^2 - 34x - 15 = 0$

Factor.

34. $5x^4 - 20x^2$

35. $16x^2 - 36$

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

37. $x^3 - 2x^2 + 3x - 6$

Solve the equation by graphing.

38. $x^2 - 6x + 9 = 0$

Solve the equation by finding square roots or using the quadratic formula.

39. $16x^2 - 60 = -11$

Graph the inequality in a coordinate plane.

40. $x - 1 \leq -3$

41. A room's length is 3 feet less than twice its width. The area of the room is 135 square feet. What are the room's dimensions?

42. A rental car agency charges \$15 per day plus 11 cents per mile to rent a certain car. Another agency charges \$18 per day plus 8 cents per mile to rent the same car. How many miles will have to be driven for the cost of a car from the first agency to equal the cost of a car from the second agency? Express the problems as a system of linear equations and solve using the method of your choice.

Factor the trinomial.

43. $33x^2 - 79x + 40$

Factor the polynomial.

44. $4n^2 - 28n + 49$

Factor the polynomial completely.

45. $5x^7 - 20x^5 + 4x^3 - 16x$

46. $16x^2 + 16x - 60$

Find the product.

47. $(4x + 7y)^2$

48. Simplify the radical expression.

$$\sqrt{\frac{98}{27}}$$

49. Decide whether the three points are the vertices of a right triangle.

$(-4, 4), (3, 1), (-2, -1)$

50. Paul is driving from home to college. He can drive south on the Interstate, then east on Highway 3. If he takes that route, his average speed will be 60 miles per hour. He can also drive directly to college on Highway 12. If he takes this route, his average speed will be 45 miles per hour.

a. How far will Paul drive if he drives south on the Interstate and east on Highway 3?

b. How far will he drive if he drives on Highway 12?

c. Which route should Paul take if he wants to drive to college as quickly as possible? Explain.

