

Algebra II Pre-AP Summer Assignment

This assignment is designed to make the transition to Algebra II Pre-AP a smooth one. You will be practicing skills you have acquired in earlier math classes. THE CONCEPT(S) COVERED BY THE PROBLEM HAS BEEN GIVEN TO YOU ABOVE EACH PROBLEM, SO THAT YOU CAN LOOK UP CONCEPTS IF YOU HAVE FORGOTTEN HOW TO DO THE PROBLEM. **The entire assignment is due on the first day of class.** There will be a test on this material at the end of the first week of school in the Fall.

Directions: In order to receive credit all work must be completed **in pencil**. Remember that we care about process, so show your work carefully on lined paper. **This should include: problem numbers, calculations done neatly, sketches drawn carefully, and labeled answers (circled, underlined, or boxed).** Graphs should be done on **graph paper**. Organize your work into columns and work down, not across the paper. **No Calculators! DO NOT USE CALCUTATORS AT ALL!**

Substitution/Order of operations/Simplifying	Absolute Value
1. Evaluate: $-\frac{a}{3} + (2-b)^2$ when $a = -6$; $b = 4$	2. Evaluate: $ 8 - 5x - 2$ when $x = 2$
Order of operations (PEMDAS)	Distribution/Combining Like Terms
3. Simplify: $16 - 4 + 12 \div 6 \times 2$	4. Simplify: $2(6x - 5(x - 1))$
Exponential Rules	Simplifying Radicals/Recognizing perfect squares
5. Simplify each expression: a. $x^4 x^8$ b. $(x^6)^2$ c. $x^{12} x$ d. $(x^3)x^4$ e. $3x(2x^{11})$ f. $(3x^3)^2$	6. Simplify each expression: a) $\sqrt{50}$ b) $\sqrt{18}$ c) $\sqrt{48}$ d) $\sqrt{24}$ e) $\sqrt{250}$ f) $\sqrt{1000}$
Exponential Rules	Exponential Rules
7. Simplify: $\frac{9^6}{9^3} =$	8. Simplify: a) $\frac{25x^2}{5x^5}$ b) $\frac{9x^2y^3}{27x^5y}$
Polynomials-adding and subtracting	Polynomials – multiplying then adding
9. Simplify: a) $(4x^2 + 2x - 7) + (2x^2 - 3x + 5)$ b) $(4x^2 + 2x - 7) - (2x^2 - 3x + 5)$	10. Simplify: $(x + 4) + (2x - 3)(x + 5)$
Polynomials – multiplying	Dividing Fractions
11. Multiply: a) $(x + 5)(3x - 4)$ b) $(x + 5)^2$ c) $(x + 1)(x + 1)$ d) $(3x - 5)^2$	12. Divide: $\frac{3}{7} \div \frac{9}{14}$
Absolute Value - Solving	Absolute Value - Solving
13. Solve for x : $ 4x - 10 = 6$	14. a) Solve for x : $10 - x + 2 = 3$ b) Graph the solution set on a number line.
Solving multi-step equations (distribution)	Solving multi-step equations (distribution)
15. Solve for x : $4x - 3(2x - 5) = 16x$	16. Solve for x : $2(x - 4) - 4 = 3(x + 7)$
Solving system of equations	Solving system of equations
17. Solve the system of equations: $x = -3y + 5$ $2x + 8y = 4$	18. Solve the system of equations. $3x - 5y = 21$ $2x + 10y = -26$
Graphing – slope-intercept form	Graphing – slope-intercept form
19. Graph the equation $y = -2x - 4$	20. Graph the equation $y = \frac{1}{2}x + 1$

Graphing linear inequality – slope-intercept form	Putting into slope intercept form/Slope
21. Graph the inequality : $y > -2x + 2$	22. Graph $-2x + 3y = 9$ and $4x - 6y = 12$. Are they parallel, perpendicular, or neither?
Slope-intercept/parallel/perpendicular	Equation of a line parallel to a line
23. Without graphing, are the graphs of the two equations parallel, perpendicular, or neither? Explain how you can tell. $3x - 5y = 12$ and $5x + 3y = 20$	24. Write an equation that represents a line that is parallel to $y = -\frac{5}{4}x - 9$ and has a y-intercept of 10.
Finding X and y intercepts	Writing equation of a line
25. What are the x-intercept and the y-intercepts of the line defined by the equation: $-2x + 3y = 24$?	26. What is the equation of the line with slope $\frac{1}{4}$ and goes through the point (8,-2)?
Point on a line given an equation	Slope/writing equation of a line given 2 points
27. Which of the given points satisfies the equation $2x + 4y = 8$? a. (0,4) b. (-4,0) c. (2,1) d. (-4,2)	28. What is the equation of the line the goes through (2, 4) and (3, -1)?
Factoring	Factoring
29. Factor: $a^2 + 3a - 4$	30. Factor: $x^2 - 9x + 20$
Factoring – Difference of Perfect Squares	Factoring – Difference of Perfect Squares
31. Factor: $x^2 - 9$	32. Factor: $81a^2 - 25$
Solving a quadratic from factored form	Solving quadratics/Factoring/Quadratic formula
33. Solve: $(x + 3)(x - 5) = 0$	34. Find the solutions of this quadratic equation: $x^2 - 3x - 18 = 0$
Quadratic Formula	Quadratic Formula/Simplifying Radicals
35. Solve by using the Quadratic Formula: $x^2 + 11x + 28 = 0$	36. Solve by using the Quadratic Formula: (Leave answer in simplest radical form) $x^2 - 3x + 1 = 0$
Quadratic Formula	Quadratic Formula
37. Use the Quadratic Formula to find the solutions to the equation $3x^2 - 11x = -5$. Express the solutions as radicals in simplest form. Be sure to set equation equal to 0 first.	38. Use the Quadratic Formula to find the solutions to the equation $8x^2 + 3x = 1$. Express the solutions as radicals in simplest form. Be sure to set equation equal to 0 first.
Linear Function Application	Writing linear equation application
39. The total cost (c) in dollars of renting a sod cutter for n days is given by the equation $c = 20 + 60n$. If the total cost of renting the cutter is \$440, for how many days was the cutter rented?	40. A 60-foot-long piece of string is cut into 3 pieces. The second piece is twice as long as the first piece. The third piece is 5 feet longer than the second piece. What is the length of the shortest piece of rope?
Writing linear equation application	Writing linear equation application
41. The lengths of the sides of a triangle are x, $2x + 2$, and 13. If the perimeter of the triangle is 30, what is the value of x?	42. A garden is 4x feet long and 5x feet wide. Write an expression (in simplest form) that represents the area of the garden.
Multiplying Rational Functions/Factoring	Dividing Rational Functions/Factoring
43. Multiply and express in simplest terms: $\frac{7z^2 + 7z}{4z + 8} \cdot \frac{z^2 - 4}{z^2 + z} =$	44. Divide and express in simplest terms: $\frac{x^2 + 8x + 16}{x + 3} \div \frac{2x + 8}{x^2 - 9}$

I will post an answer key on gayumi.weebly.com so that you can check your answers. Make sure that you show work for any problem that requires work to be shown.