

Algebra 2 Honors Summer Work

I am excited to have you in Algebra 2 Honors for the 2024-2025 school year! This is a challenging and quickly paced course that will require you to have mastered specific information from previous classes. In the following pages you will find some review topics displaying the skills necessary to be successful in Algebra 2.

Your goal is to complete each section to the best of your ability, reviewing topics that will be imperative to your success next year. In the first few days of school next year, we will briefly review the topics you struggled with and will have some time to revise your work before going over solutions and making corrections.

There are links provided before each set of problems that may help you to review the process to solve those types of problems. Use these as a reference when working through these problems in case you are struggling to recall a topic.

The flow of next year will depend on your ability to use these skills effectively, critically think, and walk into class with confidence knowing you have put in quality time over the summer. If you find yourself struggling with the summer work, please consider placement into Algebra 2 CP where more time will be given for review and less depth of material will be covered.

I look forward to seeing you next school year!

Algebra 2 Honors

SUMMER WORK

Name: _____

Summer 2024

DIRECTIONS: Complete the following problems to the best of your ability. You may print this page to record your final answers but show all work neatly on a separate sheet of paper.

- [SOLVE EQUATIONS WITH PARENTHESES](#)
- [SOLVE FOR A SPECIFIED VARIABLE](#)
- [SOLVE AN INEQUALITY](#)
- [SOLVE AN ABSOLUTE VALUE PROBLEM](#)
- [SOLVE AN ABSOLUTE VALUE INEQUALITY](#)

Solve each equation for x .

1) $3(x + 5) - (5x - 2) = 5(2x - 7)$	2) $7xy + 4 = z$	3) $7x - 2yx = x$
4) $\frac{1}{4}x + \frac{1}{2} = \frac{3}{4}x + \frac{1}{3}$	5) $x^2 + 5x + 4 = 0$	6) $\frac{\sqrt{x+4}}{2} = \frac{3}{\sqrt{x+4}}$
7) Solve & graph the solution: $8 = 3x \leq 13$	8) Solve & graph the solution: $ 3x + 2 > 5$	9) Solve & graph the solution $ 2x + 7 \leq 14$

- [EVALUATE FUNCTIONS](#)

Evaluate given $f(x) = -2x^2 - 4x$

10) $f(-2)$	11) $f(x - 1)$
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- [SOLVE A SYSTEM BY GRAPHING](#)
- [SOLVE A SYSTEM WITH ELIMINATION](#)
- [SOLVE A SYSTEM WITH SUBSTITUTION](#)

Solve the system. Write your answers as ordered pairs.

12) $4x + 3y = 11$ $2x - 2y = 2$	13) $y = -5x + 3$ $2x - y = 11$	14) $3x + 2y = 9$ $4x - 6y = -14$
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- [EVALUATE EXPRESSIONS WITH NEGATIVES](#)
- [ORDER OF OPERATIONS](#)
- [EVALUATE NEGATIVE NUMBERS RAISED TO POWERS](#)
- [ADD & SUBTRACT FRACTIONS](#)
- [MULTIPLY & DIVIDE FRACTIONS](#)
- [OPERATIONS WITH FRACTIONS](#)

- [NEGATIVE EXPONENTS](#)
- [NEGATIVE EXPONENTS](#)
- [RATIONALIZE THE DENOMINATOR](#)
- [MULTIPLYING POLYNOMIALS](#)
- [SIMPLIFYING SQUARE ROOTS](#)

Simplify each expression completely.

15) Rationalize the denominator: $\sqrt{\frac{48}{5}}$	16) $\frac{16a^{-2}bc^{-3}}{(4ab^3)^{-2}}$	17) $(2x - 3)^2$
18) $(x^2 - 5x + 4)(2x - 9)$	19) $\sqrt{54}$	20) $\frac{4-4^2 \div 8 \cdot 3 + 6}{3 - (1+1)^2}$
21) $12 - \left(\frac{8}{5} + 3 \div \frac{2}{3}\right)$	22) $4 - \frac{4}{3} \cdot \frac{5}{4} + \frac{11}{6}$	23) $\frac{1}{2} \div \frac{9}{4} \cdot \left(11 - \frac{4}{3}\right)$

- [FIND THE GCF](#)
- [FIND THE GCF](#)

- [FACTOR TRINOMIALS WHEN A=1](#)
- [FACTOR TRINOMIALS](#)

Factor

24) $2x^2 - 11x - 21$	25) $x^3 + 6x^2 + 5x$	26) $6x^2 - x - 15$
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- [DISTANCE FORMULA](#)

- [PYTHAGOREAN THEOREM](#)

Solve for the distances.

27) Find the distance between (5,3) and (6,9).	28) Find the leg of a right triangle with hypotenuse of 17 cm and a leg of 8 cm.
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- [CREATE A LINE GIVEN TWO POINTS](#)
- [PARALLEL LINES](#)

- [PERPENDICULAR LINES](#)

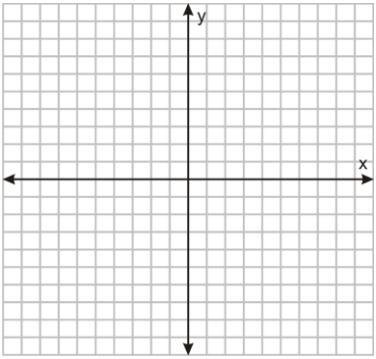
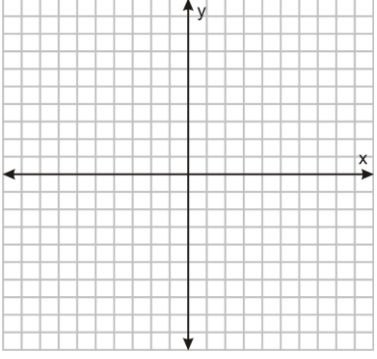
Find the equation of the line using the given information.

29) Find the equation in point-slope form of a line with a slope of -4 that passes through $(2, -6)$	30) Perpendicular to $6x - 2y = 8$ through the point $(-9, -2)$
31) Parallel to $y = -\frac{2}{3}x + 7$ through the point $(-3, 4)$	32) Through points $(3, 1)$ and $(2, 4)$

- [GRAPH FROM SLOPE INTERCEPT FORM](#)

- [GRAPH FROM STANDARD FORM](#)

Graph the following.

33) $6x + 3y = 9$ 	34) $3x - y = 2$ 
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- [FIND ZEROS](#)

- [FIND X & Y INTERCEPTS](#)

Find the x and y intercepts.

35) $3x - 5y = 15$	36) $y = x^2 + 7x + 6$
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- [SOLVE A WORD PROBLEM WITH A SYSTEM](#)

- [SOLVE A WORD PROBLEM WITH A SYSTEM](#)

Solve the following problems.

37) A parking attendant charges a different rate for cars than trucks. It costs \$10.75 to park 3 cars and 2 trucks. It costs \$12.25 to park 7 cars and 1 truck. How much does it cost to park a single car? A single truck?	38) Hair grows on your head faster than any other place on your body. Lucy was interested in figuring out how fast her hair grows so she measured the growth. After 15 days her hair grew 3 millimeters. After 50 days, it grew 10 millimeters. If hair growth can be represented by a linear relationship, then a) Write a function for the growth, $G(x)$, as a function of x , number of days b) How long did it take Sue's hair to grow 17 millimeters?
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