

Honors Algebra 2
Summer Assignment
for the school year 2021-2022

Purpose: The student will be able to complete this assignment as a review of the Algebra I skills that they will need to be successful in Honors Algebra 2. The assignment should take the student no more than 2 hours to complete.

You are required to answer every question and show all your work in the provided boxes in order to receive full credit for the question.

This assignment will count as a quiz grade in Honors Algebra 2.

This assignment is to be handed in to your Honors Algebra 2 teacher on **Tuesday, September 8, 2021**.

If you lose this document, you will need to print out a new copy from the Hackensack High School Website.

Look on the left side bar for the link to “Departments”. Click on the Math Department then select the summer assignments link. Choose the assignment that says “Honors Algebra 2”.

Name _____

Algebra 1 Teacher _____ Final Grade _____

Geometry Teacher _____ Final Grade _____

Find the value of each expression: (remember to use order of operations)

1) $7 + 3 - 2$	2) $8(3^2 + 5)$	3) $14 - (6 - 4)^2$
4) $16 + (12 \div 4)$	5) $[22 - (7 + 5)] \div 5$	6) $(11 - 4) \div (5 + 2)$
7) $6 + 3^3 - 15 \div 3$	8) $4 \cdot 5 + 16 \div 4 - 2$	9) $4 + (4 - 2)^4 - 3$

Evaluate each expression if $a = 12$, $b = 6$, $c = 3$, $x = \frac{2}{3}$, and $y = 4$.

10) $y - a \div b$	11) $cb \div xb$	12) $8y + b^2(ay)$
13) $\frac{(abc+x)-(6b^2-4)}{\frac{1}{2}}$	14) $\frac{1}{3}(y-x)^2$	15) $x \div \frac{a+b}{b^2}$

Simplify each equation

16) $5x + 2y + 13y - \frac{4}{5}x$	17) $3a + 4b + 9a - 4b + 5a$
18) $5(2x - 3y) + 7(5x + 4y)$	19) $\frac{3}{4}(12a + 8b) - \frac{2}{3}(6a - 15b)$
20) $4x(2y - 5) + 2y(3x + 2)$	20) $4x(x + 2y) - 3y(4x - 7y)$

Solve each equation

21) $3x = 12$	22) $21 = 4 - x$	23) $5x - 2 = 6x - 4$
24) $\frac{4}{5}x = \frac{7}{9}$	25) $12 - \frac{1}{4}x = 5$	26) $-3 = -(2x + 7)$
27) $\frac{1}{2}x - \frac{2}{3} = 12$	28) $\frac{5}{3}x - \frac{3}{4} = \frac{7}{5}$	29) $3x - 4 = 11$
30) $2 - 3x = -21$	31) $3(3x - 4) = 5x - 10$	32) $x + 12 = 20$

Solve each problem

33) A number is increased by 15 is 42. Find the number.

34) The sum of three times a number and 7 is 19. Find the number.

35) The sum of two consecutive integers plus 6 is 126. What are the integers?

36) Sherry is 25 years younger than her dad. The sum of their ages is 59. How old is Sherry?

37) Mrs. Chin bought some \$0.20 stamps and an equal number of \$0.29 stamps. She paid a total of \$4.90 for all the stamps. How many of each type stamp did she buy?

38) Enrique Romero bought a refrigerator for \$50 more than half its original price. He paid \$375 for the refrigerator. What was the original price of the refrigerator?

Write each linear function in standard form $Ax + By = C$

Remember: A , B , or C may not be a fraction and A should be a positive number

58) $y = -2x + 7$	59) $-3x + 2y = -14$	60) $y = \frac{2}{3}x - 4$
61) $x = \frac{3}{2}y + 3$	62) $y = -\frac{4}{5}x - 3$	63) $2x + 3y = 6$

Find the slope of the line passing through each pair of points.

64) $(0,1), (8,13)$	65) $(-9,17), (3,1)$
66) $(-4, -22), (5, \frac{1}{2})$	67) $(4, -3), (4,2)$

Solve each system using the substitution method

70) $\begin{cases} 2x + 2y = 4 \\ x - 2y = 0 \end{cases}$	71) $\begin{cases} 2x + y = 5 \\ 3x - 3y = 3 \end{cases}$
72) $\begin{cases} 3x + y = 7 \\ 4x + 2y = 16 \end{cases}$	73) $\begin{cases} x = 4 \\ 2x - 3y = -19 \end{cases}$

Solve each system using the elimination method

74) $\begin{cases} 5x + 2y = -8 \\ 2x + 3y = 2 \end{cases}$	75) $\begin{cases} -4x + y = -12 \\ 4x + 2y = 6 \end{cases}$
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Simplify each expression. Do NOT solve.

78) $3x(4x + 3) + 2(5x - 2)$	79) $2x(3x - 5) - 4(2x + 6)$
80) $3xy(2x^2 - 3x + 2y - y^2)$	81) $2x^2y^3(2x - 3xy + y)$
82) $(x + 2)(x - 5)$	83) $(x - 3)(x - 4)$
84) $(3x + 4)(2x - 4)$	85) $(5x - 1)(3x + 2)$

Factor each polynomial. Do NOT solve.

90) $x^2 + 4x + 3$	91) $x^2 - 9x + 18$
92) $x^2 + 2x - 8$	93) $x^2 - 4x - 12$
94) $2x^2 - 5x - 3$	95) $2x^2 - 5x - 12$
96) $6x^2 - 13x - 5$	97) $8x^2 - 6x - 5$

98) $x^3 + x^2 - 6x$	99) $2x^3 + 5x^2 + 2x$
100) $x^2 - 16$	101) $x^2 + 6x + 9$
102) $2x^3 - 2x^2 - 24x$	103) $x^2 + \frac{1}{2}x - \frac{3}{2}$

Solve each quadratic by either factoring or using the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

104) $x^2 - 12x + 27 = 0$	105) $x^2 - 7x - 44 = 0$
106) $16x^2 = 49$	107) $3x^2 - 13x = -10$

$$108) 4x^2 - 35x - 9 = 0$$

$$109) -2x^2 - 5x + 12 = 0$$

$$110) x^2 - 2x - 5 = 0$$

$$111) -x^2 + 4x = -2$$

$$112) 2x^2 - x = 2$$

$$113) -3x^2 + 2x + 6 = 0$$