

Algebra II Summer 2021 Assignment

45 points (based on completion)

Name: _____

The problems listed in this assignment will exercise your understanding of the learning in Algebra I. However, during this summer time, please practice and master the following topics by use of the Khan Academy website or any other website/tools of your choice. It is possible that some topics in this assignment were not learned due to the impact of COVID; however, please attempt and make an effort to solve the problems by accessing websites and videos that explain how to solve these kind of problems.

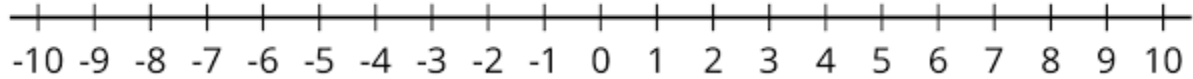
- Solve basic arithmetic operations (+ - x ÷), especially related to negative numbers.
- Simplify expressions using the PEMDAS rule.
- Factorize polynomials.
- In this age of technology and availability of tools, please learn how to maintain a sense of reasonableness in your solutions. A simple manual error, using a calculator, will result in an erroneous solution.
- Although not required, I recommend that you learn the math multiplication tables up to 12. Memorize this multiplication table and develop a sense of confidence.

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	36	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

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1. Graph $-\frac{3}{2}$ and 4 on a number line. Write an inequality statement using $<$, $>$, \geq , or \leq comparing these numbers.



2. List the numbers from least to greatest: -5.7 , $|-6.2|$, 2 , -4.6 , -6.3

3. Simplify: $[2^3 + 4(7 - 3)] \div 8$

4. Evaluate $\frac{(a^2 + b^2)(a^2 - b^2)}{(a+b)^2(2a^2 - 3ab + b^2)}$ if $a = 4$ and $b = 3$

5. Simplify: $-12 - |7 - 11| - [3 - (-9)]$

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6. Susan opened a savings account and deposited \$32.45 and \$15.67. Later, she withdrew \$20.65 from the account. Jerry opened an account and deposited \$61.50. He then withdrew \$13.71 and \$16.43 from his account. Which account has the greater balance and what is that balance?

7. Multiply: $\left(-\frac{1}{5}\right)(x^3 - 10x^2 + 20)$

8. Evaluate: $3y^3 + 2y^2 - y + 7$ if $y = -4$

9. Simplify: $(y^2 - 3y - 5) - (-y^2 + 7y - 4)$

10. Simplify: $\frac{-(7-9)(7+9)}{(2-6)(4^2)}$

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11. Multiply: $(2x - 1)(x^2 - x + 3)$

12. Solve: $5(3y - 7) = 4(2y + 7)$

13. Solve for g: $s = \frac{1}{2}gt + v$

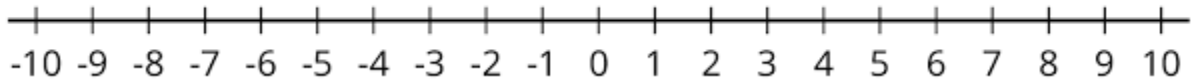
14. A car travelled for 4 hours at **50** miles/hour, then increased the speed by 10 miles/hour and travelled for 3 hours more. How far did the car go? (Hint: Speed in miles/hour = $\frac{\text{Distance travelled in miles}}{\text{Time taken in hours}}$)

15. A car travelled for 3 hours at **x** miles/hour, then increased the speed by 10 miles/hour and travelled for 2 hours more. How far did the car go? Express the answer in terms of **x**. (Use Hint from #14)

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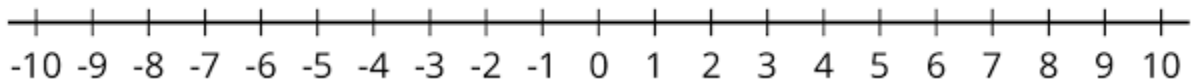
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16. Solve and graph on the number line: $5x - 4(6 + 2x) < 2(1 - x)$



17. Laura has an **equal** number of dimes, nickels, and quarters. If their total value is \$8, how many dimes, nickels, and quarters does she have?

18. Solve and graph on a number line: $|4d - 18| \geq 2$

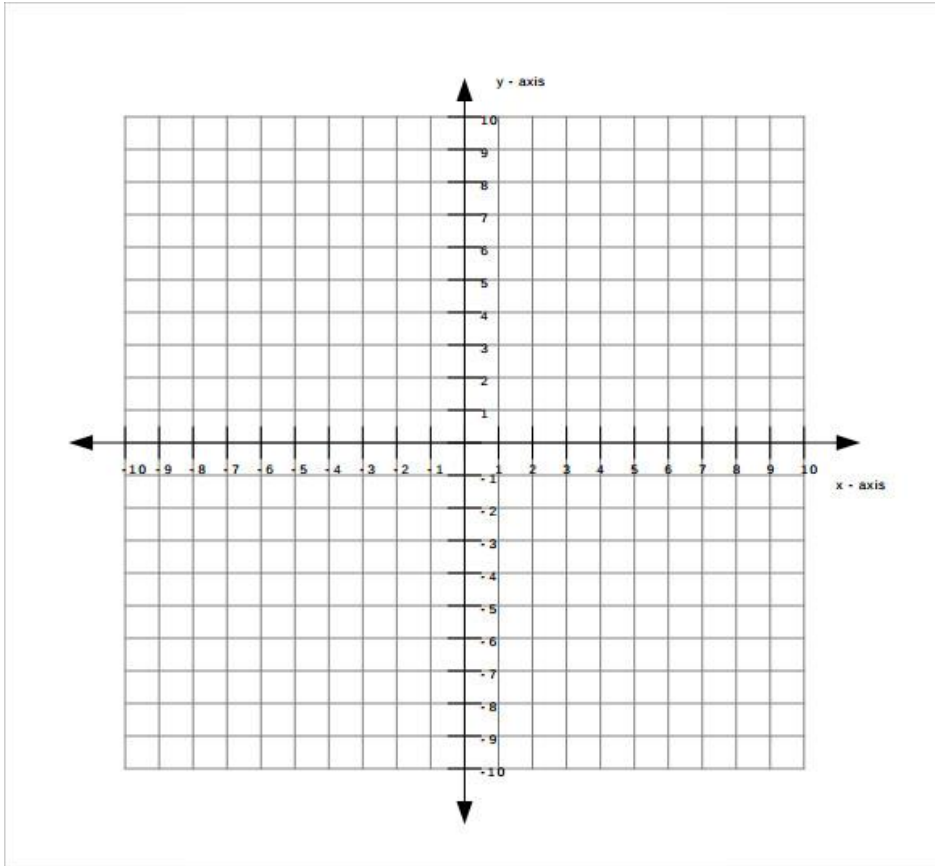


19. Determine the value of k so that the point $(-2, 3)$ will satisfy the equation: $kx - 4y = -k$

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20. Graph the equations and estimate their point of intersection.
 $2x - y = 6$ $x + 3y = 3$



21. Find the slope of the line:
(a) Through the points $(2, -3)$ and $(-1, 6)$

(b) Of the equation: $6x + 2y = 10$

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22. Find the equation of the line through the points (2, -2) and (4, 6)

23. Solve the system:

$$\begin{aligned} 3c - d &= 1 \\ c + 3d &= 1 \end{aligned}$$

24. Oscar buys three loaves of bread and two jars of peanut butter for \$5.49. Janet buys four loaves of bread and three jars of peanut butter for \$7.75. Find the price of a loaf of bread and a jar of peanut butter.

25. Simplify: $2(8x^2y - 7xy + 3xy^2) - (3x^2y - 2xy - 9xy^2)$

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26. Simplify: $(3cd^2)^2(-2c^3d)^3$

27. Multiply: $(2x - 3y)(5x + 7y)$

28. Find the (a) GCF, and (b) LCM of 24 and 36.

GCF

LCM

29. Find the (a) GCF, and (b) LCM of $56x^2y^3z$ and $42x^2y^2z^2$.

GCF

LCM

30. Factor: $b^2 - 25$

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31. Factor: $n^2 + 10n + 21$

32. Factor: $a^2 - 2a - 15$

33. Factor completely: $12x^3 - 20x^2y$

34. Solve: $\frac{5d - 3}{4} = \frac{5d + 3}{6}$

35. 21 is 6% of what number?

36. Find two consecutive odd integers whose product is 63.

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37. The sum of three consecutive integers is 69. List the three integers.

38. Express the solution in Scientific notation: $\frac{(4 \times 10^4)(9 \times 10^{-2})}{(2 \times 10^5)}$

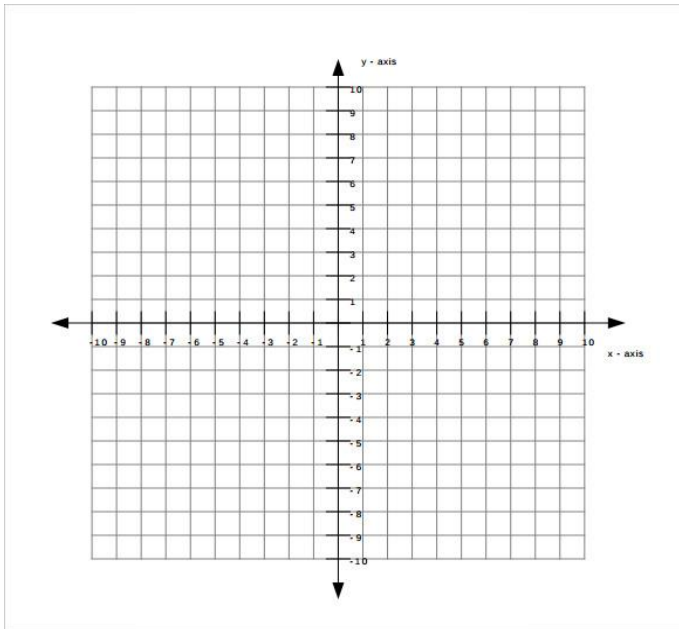
39. Long Division: $\frac{(n^3 - 2n^2 + n + 2)}{n + 2}$

40. Solve the system of equations: $2a - b = 17$
 $3a + 4b = -13$

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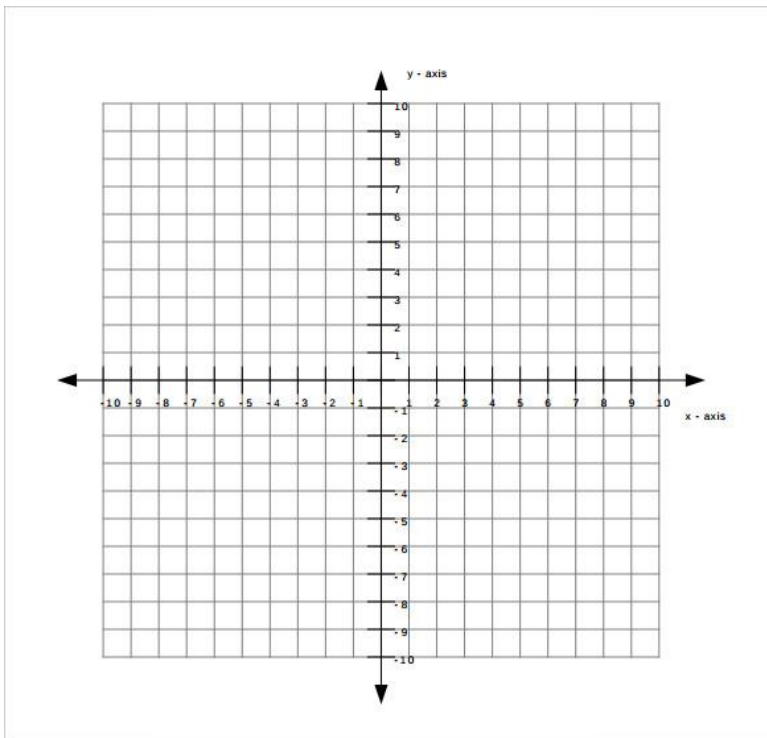
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41. Graph the inequality: $y > 2x - 3$



42. Graph the system of inequalities: $y < 5x + 3$

$y > -2x + 1$



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43. Simplify: $(4\sqrt{3} - 5)(2\sqrt{3} + 3)$

44. Simplify: $(3\sqrt{2})(2\sqrt{8})(4\sqrt{27})$

45. State whether or not these three numbers represent the lengths of the sides of a right triangle: 12, 16, 20