

Algebra I Summer 2021 Assignment

40 points (based on completion)

Name: _____

The problems listed in this assignment will exercise your understanding of the learning in Pre-Algebra (Prior to 8th grade). 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 kinds of problems.

- Solve basic arithmetic operations (+ - x ÷), especially related to negative numbers.
- Simplify expressions using the PEMDAS rule.
- Factorize polynomials, if this topic was taught this year.
- 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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Show work for credit.

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1. $(-4) + (-5) =$

2. $6 - (-3) + 1 =$

3. $3(2 + n) - 2(n + 1) =$

4. What is 6% of 120.

5. Jonah's restaurant bill comes to \$60, and he leaves a 10% tip. How much does he pay in total?

6. Alicia borrowed \$3,000 from the bank at a rate of 12% simple interest per year. How much **interest** does she pay in one year?

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7. Niko finds a toy train set on sale for 20% off the original price of \$35. He does not need to pay any sales tax. What is the total amount Nico must pay for the train set?
8. Michele purchased 25 sandwiches for a party in September. She purchased 40 sandwiches for another party in October. What is the percent increase in the number of sandwiches purchased in October compared to September?
9. Write an algebraic expression for the following statements:
- a) 5 more than two-thirds of a number.

 - b) The product of 7 and a number, reduced by 9.
10. Round 5.2814 to the nearest hundredth.

11. In a proportional relationship shown in the table below:

Dollars earned (\$)	30	75		90
Hours worked	2	5	3.5	

- a) Write the algebraic relationship between the dollars earned and hours worked.

- b) How much is earned by working 3.5 hours?

- c) How many hours need to be worked to earn \$90?

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12. Frank's dog is 8 pounds heavier than Lucy's dog. If m represents the weight of Lucy's dog, what is the weight of Frank's dog in terms of m ?

13. Find the slope of a line that passes through the points $(-2, -2)$ and $(6,2)$.

14. Find the y-intercept and slope of the line represented by $2y - 4x = 10$.

15. Mia correctly answered 12 out of 16 questions on her English test. What percent of the questions did she answer correctly?

16. Write these numbers in order from least to greatest: 2.03, 2.0, 2.004, 2.0009, 2.1

17. A large pizza costs \$10. Each topping cost an additional \$2. This cost of the pizza can be represented by the equation $y = 2x + 10$, where x is the number of toppings, and y is the total cost.

a) Make a table of values for this situation:

Number of toppings (x)	1	2	3	4
Total cost of the pizza (y)				

b) What is the cost for 6 toppings?

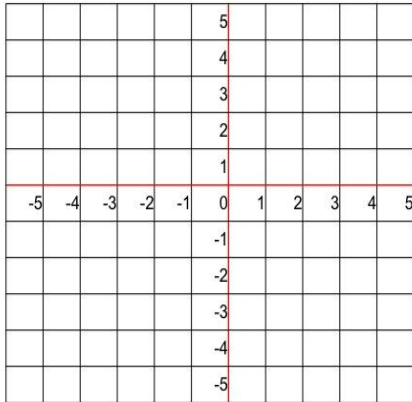
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18. Make a table and graph the solutions of the equation: $y = 2x + 1$

x					
y					

Graphing Data



19. Find the slope of a line that passes through the points $(-3, -5)$ and $(1, 3)$

20. Simplify:

a. $\frac{1}{6} + \frac{2}{3} =$

b. $\frac{5}{8} - \frac{1}{4} =$

c. $\frac{5}{9} \div \frac{1}{3} =$

d. $\frac{2}{5} \times \frac{15}{8} =$

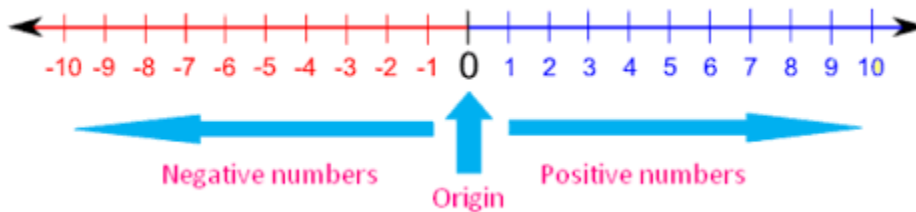
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21. Nuala drives to her grandma's. She drives at 20 miles per hour. The journey takes 50 minutes. How long would the journey take if Nuala drove at 40 miles per hour?

22. Solve the inequality and graph it on a number line.

$$2a + 5 \leq 13$$



23. Find the circumference and area of a circle having a diameter of 12 inches.

Circumference = _____

Area = _____

24. Solve: $3(x + 2) = -5 - 2(x - 3)$

25. Simplify: $-4(x + 3) + 2(-x - 4) =$

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26. Jorge's printer can print 24 pages in 15 minutes. How many pages can it print in (a) 40 minutes (b) 1 hour?

27. 617 students went on a field trip. Ten buses were filled and 17 students travelled in cars. How many students were in each bus?

28. Solve: $3(x - 2) + 5x = 4(x + 7)$

29. The sum of 3 consecutive numbers is 54. What is the smallest number?

30. Ava drives from San Jose to Walnut Creek, a distance of 70 miles. She then travels on to Lake Tahoe, which is 140 miles from Walnut Creek. If it takes her 3 hours to complete the trip, what was her average speed for the trip?

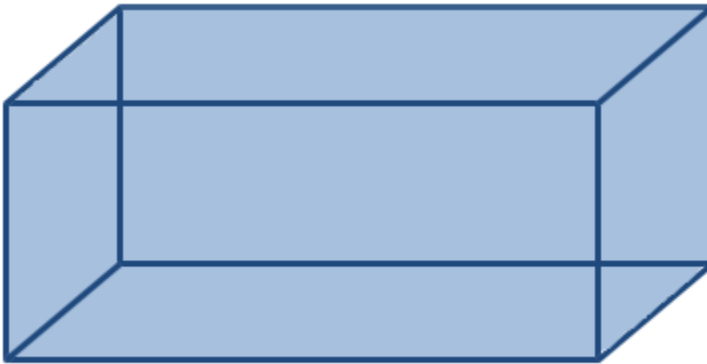
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31. Which is the best buy? 4 ounces for \$24 OR 2 ounces for \$13

32. The earth travels in an orbit around the sun at 32.5 miles in 2 seconds. At this rate, how many miles around the orbit will the earth travel in 4 minutes?

33. Find the surface area of the right rectangular prism shown in the figure.



Length = 9 meters, Width = 7 meters, and Height = 5 meters.

34. Write 7.8×10^9 in standard notation.

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35. What is the Greatest Common Factor (GCF) of 28, 49 and 63?

36. What is the Least Common Multiple (LCM) of 4, 10 and 24?

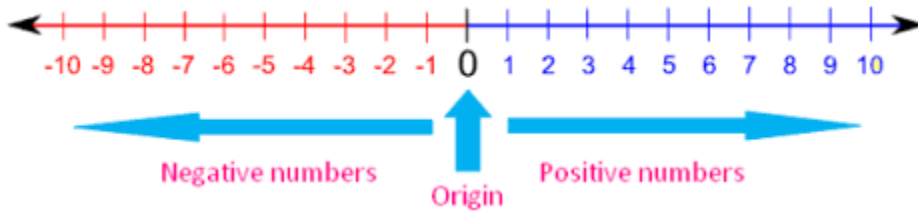
37. Marilyn leaves home riding her bike at 10 miles per hour and reached her aunt's home in 3 hours. Her brother Matt leaves home sometime later. How long will it take Matt to reach his aunt's home if he rides at 6 miles per hour?

38. One water heater tank A is leaking $\frac{1}{16}$ of a gallon in $\frac{1}{12}$ minute, and Tank B is leaking $\frac{3}{80}$ of a gallon in $\frac{1}{30}$ minute. Which tank is leaking faster?

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39. Solve and graph the inequality: $16 > -20 + 9d$



40. Solve and graph the inequality: $-9x \leq 18$

