Dear Student,

Welcome to Algebra 1! Algebra 1 is the branch of mathematics which uses letters and symbols to express relationships between quantities in terms of formulas, and equations. Algebraic symbolism and operations enter into nearly all branches of science, including the various subdivisions of mathematics.
Topics included are fundamental concepts of modern mathematics, positive and negative numbers, irrational numbers, and linear, quadratic and exponential equations and functions.

This summer math packet addresses the material that you were exposed to in previous math courses.
It serves two purposes:
1. It will allow you to remain mathematically fresh during the summer.
2. It will allow you to enter Algebra 1 prepared, and ready, with a review of previous mathematical concepts.

To receive credit, all work must be shown in the space provided for each question. This includes the multiple choice section. All work must be done in pencil, neat and organized.
In addition, use the answer sheet provided to document your answers.

This **WILL** be graded and count towards the 1st marking period.

I hope that you have an enjoyable summer and return ready for Algebra 1!

Name:_____

Date:_____

Period(if known):_____

Algebra 1 Summer Packet Answer Sheet

Name:_____

1)_____ 18)_____ 35)_____ 47)_____

2)_____ 19)_____ 36)_____ 48)_____

3)_____ 20)_____ 37)_____ 49)_____

4)_____ 21)_____ 38)_____ 50)_____

5)_____ 22)_____ 39)_____

6)_____ 23)_____ 40)_____

7)_____ 24)_____ 41)_____

8)_____ 25)_____ 42)_____

9)_____ 26)_____ 43)_____

10)_____ 27)_____ 44)_____

11)_____ 28)_____ 45)_____

12)_____ 29)_____ 46)_____

13)_____ 30)_____

14)_____ 31)_____

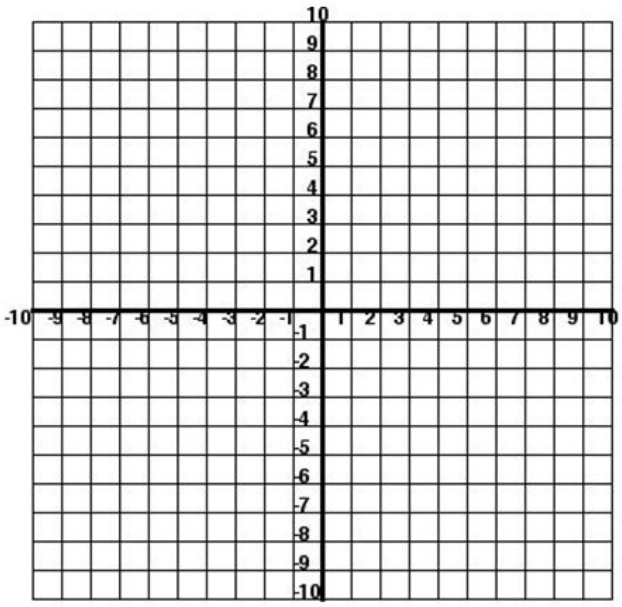
15)_____ 32)_____

16)_____ 33)_____

17)_____ 34) (,) (,)

(,) (,)

(,)



Multiple Choice Section:

Identify the choice that best answers the following multiple choice questions. All work for these problems must be shown in the space next to the question. Transfer final answers to the attached answer sheet.
No work = No credit

Simplify:

1. $-2 - (-12) + 3 - 7$

○ a. 0

○ b. 6

○ c. 20

○ d. -18

2. $8 + (-5) - 4 - (-14)$

○ a. 21

○ b. -15

○ c. 23

○ d. 13

3. $(7 - 11)^2 \div (2 - 4)^2$

○ a. 4

○ b. 81

○ c. 9

○ d. 16

4. $\left(\frac{1}{2} + \frac{1}{3}\right) \div \left(\frac{2}{3} - \frac{1}{12}\right)$

○ a. $\frac{2}{7}$

○ b. $\frac{10}{7}$

○ c. $\frac{2}{9}$

○ d. $\frac{10}{9}$

5. $(3 - 5)^2 + 5 - 3^2$

○ a. 8

○ b. 0

○ c. -20

○ d. 18

6. $|(4 - 5)^2 - 12|$

○ a. 11

○ b. -11

○ c. 13

○ d. -13

7. Evaluate $x^2 + 3x - 1$ when $x = -2$

- ○ a. -3
- ○ b. 9
- ○ c. -11
- ○ d. 1

8. $5xy - 3y$ when $x = 7$ and $y = -5$

- ○ a. 0
- ○ b. 6
- ○ c. -160
- ○ d. -18

9. $\frac{2x-1}{y}$ when $x = 5$ and $y = 3$

- ○ a. 9
- ○ b. 8
- ○ c. 1
- ○ d. 3

10. Is the ordered pair a solution of the equation?
$y = x - 3; \quad (1, -4)$

- ○ a. yes
- ○ b. no

11. Solve the proportion. $\frac{5}{6} = \frac{x}{30}$

- ○ a. 20
- ○ b. 25
- ○ c. 6
- ○ d. 5

12. Solve for the variable $y + 7 = 2$

- ○ a. -5
- ○ b. 9
- ○ c. 5
- ○ d. -9

13. A school is having a canned food drive. Each class is challenged to collect 130 cans. If there are c classes in the school, which equation could be used to find the total number of cans, T, the school will collect if each class meets the challenge?

○ a. $T = 130 + c$

○ b. $T = \frac{c}{130}$

○ c. $T = 130c$

○ d. $T = \frac{130}{c}$

14. $-9x = 72$

○ a. 8

○ b. -8

○ c. 81

○ d. 63

15. $y - \frac{2}{7} = \frac{3}{4}$

○ a. $\frac{5}{7}$

○ b. $-\frac{13}{28}$

○ c. $\frac{13}{28}$

○ d. $\frac{29}{28}$

16. $-6x - 4 = 50$

○ a. -5

○ b. 11

○ c. $\frac{-23}{3}$

○ d. -9

17. Write the mixed number $5\frac{3}{4}$ as an improper fraction.

○ a. $\frac{23}{4}$

○ b. $\frac{13}{4}$

○ c. $\frac{5}{14}$

18. Selene's checking account balance was $33, and then she withdrew $50. What is her checking account balance after the withdrawal?

◌ a. -$83

◌ b. -$17

◌ c. $83

◌ d. $17

19. Andrew must spend less than $74 on meals during the weekend. He has already spent $29 on meals, with each meal costing $9 on average. An inequality represents Andrew's situation below:

$9x + 29 < 74$

How many additional meals can Andrew buy this weekend?

◌ a. $x < 5$

◌ b. $x < 9$

◌ c. $x < 45$

◌ d. $x < 29$

20. Silas took 15 bags of glass to the recycling center. He still has 8 bags of plastic to take to the recycling center. Which equation could be used to find x, the total number of bags of glass and plastic Silas will take to the recycling center?

◌ a. $x - 15 = 8$

◌ b. $15 - x = 8$

◌ c. $x + 15 = 8$

◌ d. $15 = -x + 8$

21. Identify the slope and y-intercept of the line. $y = -x + 8$
[Hint: make sure you're in the form $y = mx = b$]

○ a. $m = -1,\ b = 8$

○ b. $m = 1,\ b = -8$

○ c. $m = -1,\ b = -8$

22. Which algebraic expression below is equivalent to the expression $2(5x + 7)$?

○ a. $10x + 7$

○ b. $5x + 14$

○ c. $10x + 14$

○ d. $17x$

23. True or False 0.625 is an irrational number

○ a. True

○ b. False

24. Which of the following is equivalent to $-\left(\frac{5}{12}\right)$

○ a. $\frac{-5}{12}$

○ b. $\frac{-5}{-12}$

○ c. $\frac{5}{12}$

○ d. $\frac{12}{-5}$

25. Which of the following is equivalent to $-\left(\frac{7}{15}\right)$

○ a. $\frac{15}{-7}$

○ b. $\frac{7}{-15}$

○ c. $\frac{7}{15}$

○ d. $\frac{-15}{7}$

Short Answer Section:

All work for these problems must be shown in the space next to the question. Transfer final answers to the attached answer sheet. No work = No credit

26. $-4+3x=4(x-2)$

27. $\frac{3}{4}x=6$

28. $\frac{5}{4}x=\frac{1}{2}-\frac{7}{10}$

29. $5x+30-4x-28=10$

30. $x+10=-11$

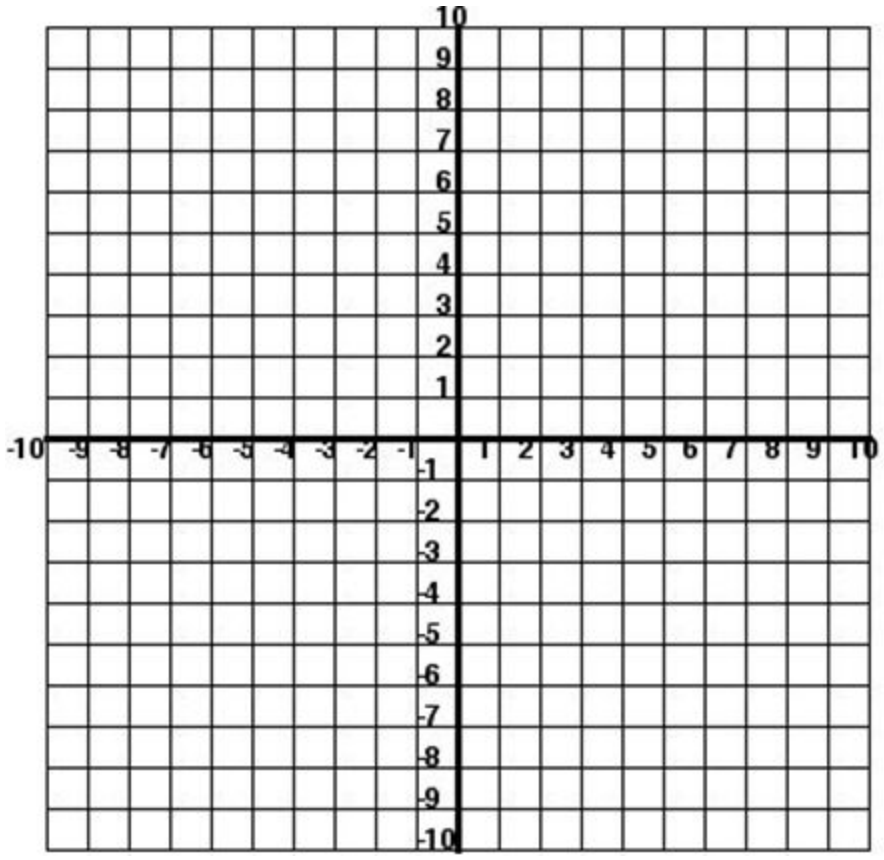
31. $-x+1=-10$

32. $2-3(5x+2)=26$

33. $-4-10=4x-5x$

34. Find the ordered pairs and plot them on the graph. Then draw the line.

x	$2x - 3$	
-2		(,)
-1		(,)
0		(,)
1		(,)
2		(,)



35. Amber is on a family cell phone plan with the other 3 members of her family. The family gets 600 shared cell phone minutes a month, and each family member is limited to his or her equal share of the minutes. The only free calls are calls between family members.

How many minutes per day can Amber talk on her cell phone with her friends during a 30-day month, without going over her share of the minutes?

For problems 36 and 37, is the ordered pair a solution of the equation?

36. $3x - 5y = -1$; $(9, 5)$

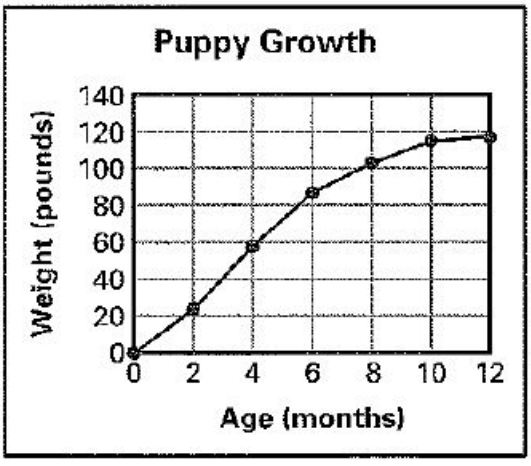
37. $x - 2y = 8$; $(-6, -7)$

38. Solve the proportion. $\frac{x}{4} = \frac{42}{28}$

39. Solve the equations..

$x - \frac{5}{9} = \frac{4}{5}$

In problems 40 and 41, use the line graph which shows the weight of an Irish wolfhound puppy.



40. What was the weight of the puppy at 8 months?

41. How old was the puppy when it weighed 60 pounds?

42. The table below shows the cost for a factory to produce mid-sized cars. Based on the information in the table, how much does it cost the factory to produce each car?

Number of Cars Produced	Cost
0	$0.00
3	$16,266.00
5	$27,110.00
6	$32,532.00

43. Jan has run 13/7 miles in a road race that is 3 miles long. How much farther must she run to complete the race?

44. The table shows the relationship between the weight of a package and the cost of mailing it. Based on the table, how much money will it cost to mail a 13-ounce package?

Weight of Package	Cost
1	$0.37
2	$0.60
3	$0.83
4	$1.06
8	$1.98

45. During the summer, you work 30 hours per week at a gas station and earn $8.75 per hour. You also work as a landscaper for $11 per hour and can work as many hours as you want. You want to earn a total of $400 per week. How many hours must you work as a landscaper?

46. The altitude a (in feet) of a plane t minutes after liftoff is given by $a = 3400t + 600$. How many minutes after liftoff is the plane at an altitude of 21,000 feet?

47. The table shows the top three times in a swimming event at the Summer Olympics. Each country consists of a team of four women swimming 100 meters each. Suppose the times of all four swimmers on each team were the same. How much time will it take a Netherlands swimmer to swim 100 meters? Do not round your answer.

Women's 4 x 100 Freestyle Relay		
Medal	**Country**	**Time (seconds)**
Gold	Australia	215.94
Silver	United States	216.39
Bronze	Netherlands	217.59

48. You are saving money to buy a new bicycle that costs $165. You have $30 and plan to save $5 each week. Your aunt decides to give you an additional $10 each week. How many weeks will you have to save until you have enough money to buy the bicycle?

49. Find the GCF (Greatest Common Factor) of the numbers 24, 44, and 52.

50. Hamburgers come in packs of 20, while buns come in packs of 12. What is the least number of <u>bun packages</u> you should buy in order to have the same numbers of hamburgers and buns?