Algebra I Summer Work

Name _____ Date _____ Period ____

Show all work. Round to the nearest tenth when needed.

2020-21 Algebra I Prerequisite Skills – Summer Work
This assignment is *not* required, however, we strongly urge you to complete it by the first day of school. You will be given a pre-test over your ability to solve problems like these. These are prerequisite skills that are necessary for Algebra.

NO CALCULATOR ALLOWED PORTION (#1-57)
Adding/Subtracting/Multiplying/Dividing Integers.

1. $2 - 7$	2. $10 - (-4)$	3. $-13 + 1$
4. $18 \div (-3)$	5. $(-7)(-8)$	6. $-9 + (-9)$
7. $-2 - 5$	8. $20 + (-20)$	

Combining like terms

9. $7x + 3 - 2x$	10. $8 + 2x + 5$	11. $-8x + 5y - 6x - 19y$
12. $-5x - x$	13. $6x + 7y - x + 3$	

Order of Operations

14. $32 + 16 \div 4 \cdot 2$	15. $10 + 50 \div (12 - 2)$	16. $3 + 5(1 + 7)$
17. $4 \cdot 8 - 5^2 + 3$	18. $(2 + 8)^2 - 13$	

Evaluate Expressions

Evaluate the following expressions if a = 2 and c = -6

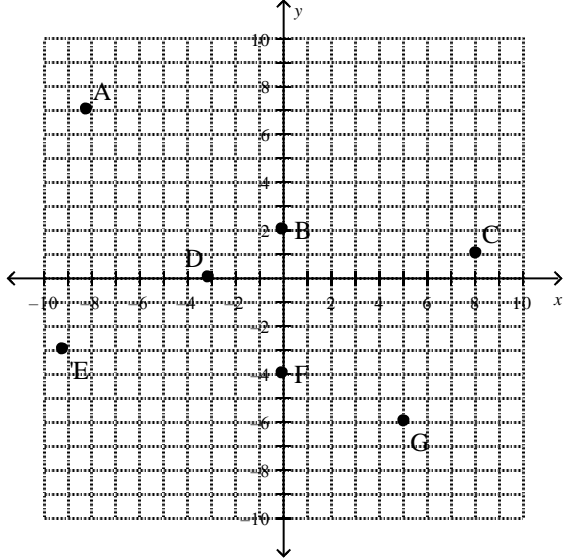| 19. $2a + c^2$	20. $5ac - 8$
21. $(10 + a) \div c$	22. $a^2 - 3c$

Algebra I Summer Work

Solving One-Step Equations

23. x + 5 = 17	24. 3x = −42
25. $\dfrac{b}{-4} = -10$	26. y − 8 = −9
27. 7 = x − 8	28. 2 + x = 11

Solving Multi-Step Equations

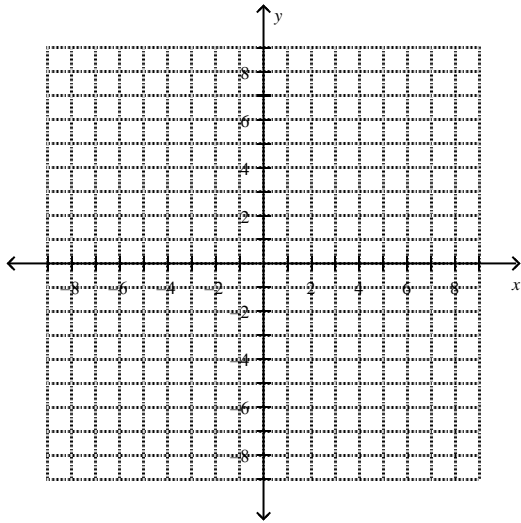| 29. 4 x + 10 = 50	30. 5x − 30 = −35	31. $\dfrac{3}{4}$x + 2 = −10
32. 3(x + 9) = 24	33. $\dfrac{x}{2} = \dfrac{24}{8}$	
34. $\dfrac{c+5}{8}$ = 10	35. -2 = y − 7	

Write the coordinates of each point

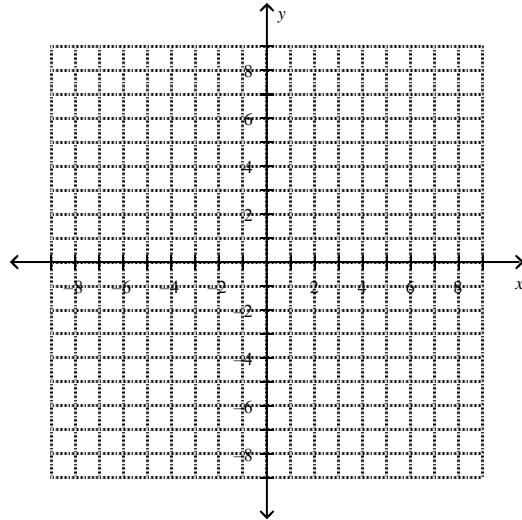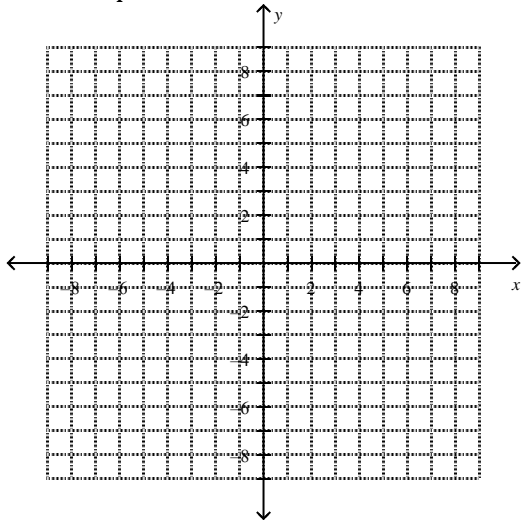| 36-42. A:_____ B:_____ C:_____ D:_____ E:_____ F:_____ G:_____	

Algebra I Summer Work

Graph the equation.

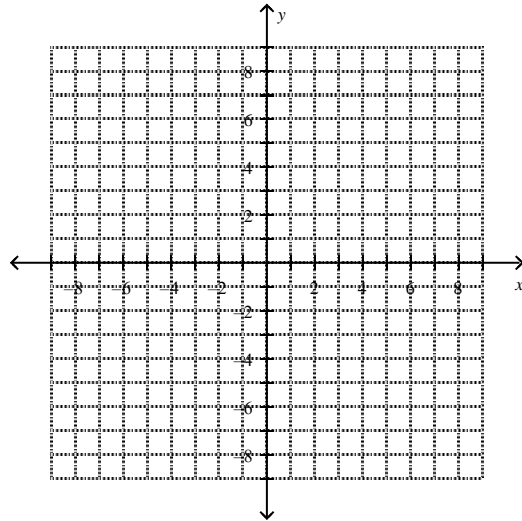|	
43. y = 4x	44. $y = -\frac{2}{3}x + 1$
45. $y = \frac{3}{4}x - 5$	46. y = 3

Distributive Property

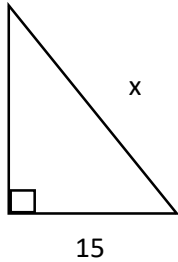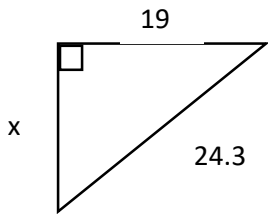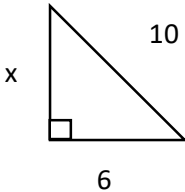| 47. -3(x-6)	48. y(y-5)	49. X(x + z -4x)	50. 7(4+b)
51. (c + 7)5	52. −(4x + 2)	53. -2x(3x − y)	

Algebra I Summer Work

Algebraic Expressions

Write an Algebraic expression (and solve if applicable) from the verbal expressions:

54. Five less than three times a number	55. Four times a number is 6 less than 10 times the same number. What is the number?
56. 13 more than the product of 6 and x	57. The quotient of x and 2 is the same as x decreased by 8. What is the number?

CALCULATOR ALLOWED PORTION (#58-70)

Pythagorean Theorem

Find the missing length, if necessary round to the nearest tenth.

58. 8, x, 15	59. 19, x, 24.3
60. 10, x, 6	61. The shortest leg of a right triangle is 2 cm, and the other leg is 4 cm. How many cm long is the hypotenuse?

Algebra I Summer Work

Rational/Irrational Numbers

62. Which rational number has a decimal expansion of 0.125?   a. $\frac{4}{12}$ b. $\frac{1}{8}$ c. $\frac{2}{11}$ d. $\frac{5}{6}$
63. What fraction is equal to .272727….   a. $\frac{3}{11}$ b. $\frac{3}{10}$ c. $\frac{15}{2}$ d. $\frac{7}{2}$
64. Which **numbers** have finite decimal expansions?   a. $\frac{9}{18}$ b. $\frac{17}{51}$ c. $\frac{6}{31}$ d. $\frac{7}{42}$ e. $\frac{49}{16}$
65. Which **numbers** are irrational?   a. 7   b. $\frac{5}{9}$ c. $\sqrt{16}$ d. $\sqrt{14}$ e. $6.7\overline{8}$ f. 2π
66. Which fraction is equal to 0.04   a. 4/1   b. 4/10   c. 4/100   d. 4/1000

Distance and Mid-Point Formulas

67. Find the distance between the points in the pair. Round to the nearest tenth if necessary: C (-1,-2) and D (-5, 7)
68. Find the midpoint of the segment with the given endpoints: A(2,9) and   B(-1, 5)
69. You plan to walk from your starting position on a coordinate plane located at point (1, 5) to your friend who is located at point (4, -5). What is the distance you will have to travel to get to your friend? Round your answer to the nearest tenth.
70. A pond is located in the exact middle of your starting location, and your friend's location from #69. What are the coordinates of the pond?

Algebra I Summer Work

<u>Helpful Formulas:</u>

1. Slope: m = $\dfrac{y_2 - y_1}{x_2 - x_1}$

2. Distance: d = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

3. Midpoint: midpoint = $\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2} \right)$