Summer Assignment 2023
Incoming 8th Grade Algebra 1 Honors

Dear Student,

This summer assignment will prepare you for success in Algebra 1. Please complete the following exercises this summer and be prepared to submit your work by <u>Friday September 8</u> to your Algebra 1 teacher.

This packet will be counted as the first homework assignment of the year. In order to receive full credit, all work must be shown neatly in the space provided or attached to this packet on separate sheets of paper. <u>Answers written with no work shown (where needed) will receive no credit.</u> You are encouraged to work in groups to help each other, however copying is unacceptable. This packet consists of 7th grade material, so it is expected that you are coming in to this course knowing this material. If there is anything in this packet that you do not remember, scan the QR code for that section and it will take you to a video on that topic.

<u>**You will have a quiz on the material covered in this packet during the second week of school. This will be your first quiz grade of marking period 1.**</u>

If you have any questions, please reach out to your math teacher or jtalewsky@bbrook.k12.nj.us.

Sincerely,

The CMS Math Department

Write an algebraic expression for each phrase.

1. 11 more than y.

2. A taxi charges $3 for the first mile and $2 for each additional mile traveled. Let m be the number of miles traveled in the taxi.

3. 8 less the product of x and 3.

Evaluate each expression.

4. $20 \div (4 - (10 - 8))$

5. $-4 - (1 - 5) - (-4)^2$

6. $\dfrac{45}{8(5 - 4) - 3}$

Evaluate each expression with the values given.

7. $x(z + 3) + 1 + 3 - y$; use $x = 6$, $y = -5$, and $z = 2$

8. $-3 \div 3(a + c(b + 5) - (-6 + a))$; use $a = 1$, $b = -6$, and $c = -4$

Simplify each expression.

9. $-10(-8x + 9) - 8x$

10. $-2(-6x - 9) - 4(x + 9)$

Solve each equation.

11. $9x - 7 = -7$

12. $-5 = \dfrac{a}{18}$

13. $-(7 - 4x) = 9$
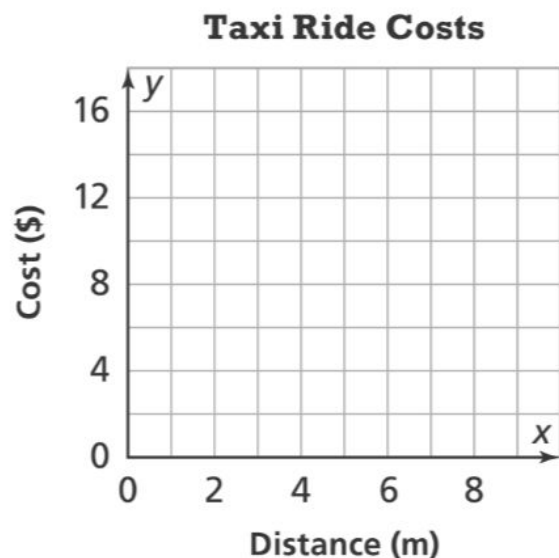
14. $-2.5(x - 4) = -3x + 4$

15. $\frac{1}{2}x + \frac{3}{4}x = 5 - 2.5x$

Solve the following problem.

16. A taxi ride costs $4, plus an additional $3 per mile.

Write an equation to represent the scenario. Then graph the line of the equation.

Taxi Ride Costs

Write an equation to represent each scenario. Then solve each problem.

17. A music shop charges a deposit of $20, plus a monthly rate of $30 to rent an instrument. For how many months did Avi rent an instrument if he spent a total of $80?

18. Adam works at a bakery. He uses $\frac{1}{8}$ of his flour supply to make bread and $\frac{3}{4}$ of his flour supply to make other baked goods. If Adam used 21 pounds of flour, how much flour did he have in his supply?

Solve the problem.

19. Dominique and Ella are comparing whose jet traveled faster. The graph shows the relationship between the total distance Dominique traveled and the time in hours. The distance Ella traveled after x hours can be represented by the equation $y = 550x$.

Who, if anyone, traveled at a faster speed? Explain.

Dominique's Travel
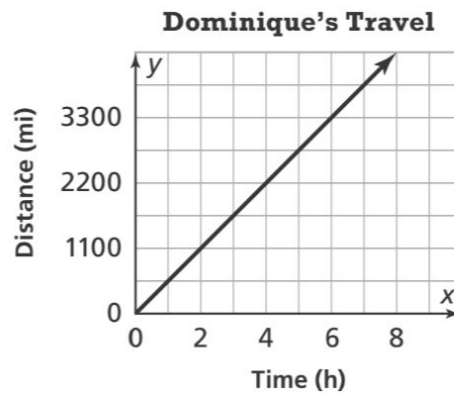
Solve each proportion.

20.
$$\frac{9}{6} = \frac{x}{10}$$

21.
$$\frac{7}{b+5} = \frac{10}{5}$$

**Fill in each blank based on the word problem.**

22. Moesha needs $79.50 for a class trip. She already has $22.35 and she can earn the rest by babysitting for 8 hours. Write an equation that can be solved to find h, Moesha's hourly earnings.

☐ = ☐ + ☐ h

23. Anya budgets $200 for commuting to work each month. She buys a monthly bus pass for $72.50 and spends $7.25 each time she buys lunch. Write an inequality that describes the number of days, d, that Anya can afford to buy lunch.

☐ ≥ ☐ d + ☐

24. Solve for x in the inequality $\frac{2}{3}x - \frac{1}{6} > \frac{1}{2}$. Graph the solution on a number line.

$\longleftarrow\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!+\!\!\longrightarrow$
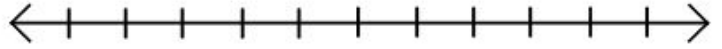
Solve the problem.

25. Mr. Daniels is organizing a class trip. He wants to spend less than $900. The bus rental costs $600. Mr. Daniels will also buy tickets that cost $9.50 per student.

Write an inequality to represent the number of students, y, that Mr. Daniels can bring on the trip.

26. Paula weeded 40% of her garden in 8 minutes. How many minutes will it take her to weed all of her garden at this rate? Explain.

27. Write and simplify an expression for the volume of a rectangular prism with length 7.5 ft, width w ft, and height 4.2 ft. What is the volume if the width is 2 ft?

28. The same digits are used for the expressions 3^4 and 4^3. Explain how to compare the values of the expressions.

29. Employees of a landscaping company built a retaining wall with area $23\frac{3}{8}$ sq ft. They used brick to make the top portion of the wall.
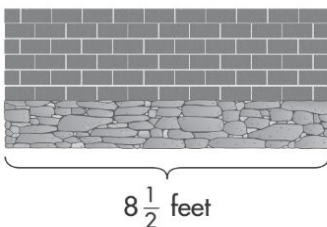
Suppose the area of the brick portion of the wall is $15\frac{7}{12}$ ft². What fraction of the wall is brick? Write an equation to show your work.

$8\frac{1}{2}$ feet

Solve each problem.

30. What percent of 126 is 22?

31. What is 89% of 250?

32. What is the percent decrease from 35 to 25?

33. A meal at a restaurant costs $32.50. You leave a 20% tip for the waiter and there is 7% sales tax. How much do you end up spending on the meal including tax and tip? (Tip and tax are calculated on the cost of the meal only)

34. The money used in Jordan is called the Dinar. The exchange rate is $3 to 2 Dinars. Find how many dollars you would receive if you exchanged 22 Dinars.

Answer in complete sentences.

35. Create a scenario that could be modeled by the function $y = 0.1x + 25$.

36. Explain how you can determine whether a function is linear or nonlinear.