

Summer Work Packet for MPH Math Classes

**Students going into
Algebra I AC (7th, 8th, 9th)
Sept. 2020**

Name: _____

7th & 8th GRADE ONLY

PRE-ALGEBRA DEMYSTIFIED

July 1, 2020

Dear SEVENTH and EIGHTH GRADE Parents,

Your son/daughter is scheduled to take an accelerated Algebra class, Algebra 1 AC next year. As this is an advanced class, it is required that your child complete some additional math work over the summer to prepare for the class in the fall.

Your child has been asked to work through the book Pre-Algebra Demystified in preparation for his/her advanced work in Algebra 1AC this year. It is a great book that explains each topic in words and then gives sample problems for the students to work through. While the whole book is great, your child should only focus on a few of the sections.

It is very important that he/she fully understands integers and how to use them in operations from Chapter 2 so it is essential that he/she work through this section completely. Students should already know the information in Chapter 3 and most of Chapter 4, but they should review it so it is fresh in their minds. They should work through chapters 5-8 and skip chapters 9 and 10. We will learn about chapters 11 and 12 in class this year, so they may want to briefly look over it, but they won't need to know the information before coming to class.

There are many ways to work through the book: some students choose to read everything and then go back to do the questions. Other students like to skip around reading pieces and answering the questions as they go. Whatever works for your child is the best strategy for them, so enjoy the book! They will not need to hand in their work and can choose to do as many problems as necessary to fully understand each section. They will however be responsible for knowing the material on the first day of class. We will not be re-learning this information – they are expected to master it on their own and be ready to use the material as we move on. **After reading through the book, they should solve the problems in the Summer Packet for Algebra 1 AC. It should be completed for the first day of classes.**

Please feel free to contact us with any other questions or concerns you have about the summer work. We look forward to a fun and math-filled year for your child!

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7th, 8th, and 9th GRADE STUDENTS

This packet is designed to help students stay current with their math skills.

Each math class expects a certain level of number sense, algebra sense and graph sense in order to be successful in the course.

These problems need to be completed in the space provided, or a separate sheet of paper, by the first day of class. Be sure to show all work.

Students can expect to have a test on this material during the first marking period. If you have any questions, please email Mr. Ochs at jochs@mphschool.org or Mrs. Meehan at dmeehan@mphschool.org.

****You will need a TI-84⁺ calculator for this class.****

Fractions: Add, subtract, multiply or divide the fractions. Please show your work.

1) $1\frac{1}{4} + 2\frac{1}{2} =$

2) $-4\frac{2}{3} + -3\frac{7}{12} =$

3) $5\frac{7}{10} - 1\frac{1}{6} =$

4) $6 - 2\frac{8}{11} =$

5) $1\frac{1}{2} \cdot -2\frac{2}{3} =$

6) $\frac{8}{21} \cdot 2\frac{7}{16} =$

$$7) \quad -3\frac{1}{4} \div 1\frac{7}{8} =$$

$$8) \quad 6\frac{5}{6} + -3\frac{7}{9} =$$

$$9) \quad 3\frac{1}{4} - 6\frac{5}{6} =$$

$$10) \quad \frac{5}{6} \cdot 2 =$$

$$11) \quad 3\frac{1}{4} \div 1\frac{7}{8} =$$

$$12) \quad -5\frac{1}{2} - \left(-2\frac{7}{8}\right) =$$

Solve for x. Please show your work. Check.

13) $8x - 8 = 4x$

14) $\frac{2}{3}x = \frac{1}{4}x + 10$

15) $3(x + 5) = -18$

16) $-45 = 5\left(\frac{2x}{5} - 3\right)$

Find the slope of the line connecting points A and B. Please show your work.

Example: $m = \frac{y_2 - y_1}{x_2 - x_1}$, so if point A is (5, 3) and point B is (-1, 1), then

$$m = \frac{3 - 1}{5 - (-1)} = \frac{2}{6} = \frac{1}{3}$$

17) A (-1, 3); B (5, 4)

18) A (-1, -6); B (2, -3)

19) A (0, 8); B (2, 4)

20) A $(\frac{3}{4}, \frac{3}{2})$; B $(\frac{11}{4}, \frac{5}{2})$

*****PLEASE DO THE FOLLOWING ON GRAPH PAPER*****

For each problem, graph each equation on a separate x, y grid using the y-intercept and slope.

Remember, in the form $y = mx + b$, $m = \text{slope}$ and $b = \text{y-intercept}$. Thus, for $y = \frac{2}{3}x + 2$, $m = \frac{2}{3}$ and $b = 2$, so the coordinates of the y-intercept are $(0, 2)$. To graph, use the following steps:

- a) Identify the slope and y-intercept.**
- b) Plot the y-intercept.**
- c) Locate two other points using the slope.**
- d) Connect the points with a line.**

21) $y = \frac{1}{2}x - 1$ $m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$ y-intercept $\underline{\hspace{2cm}}$

22) $y = -3x - 1$ $m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$ y-intercept $\underline{\hspace{2cm}}$

23) $y = -\frac{2}{3}x + 4$ $m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$ y-intercept $\underline{\hspace{2cm}}$

Simplify completely. Remember GEMDAS. Please show your work.
(Grouping symbols, Exponents, Multiply/Divide, Add/Subtract)

24) $1 + 2 - 3 \cdot 4 \div 2^2 =$

25) $5 \times 3^2 - (7 + 3) \div 2 =$

26) $52 + |-6| \times (9 - 7) \div 2^2 =$

27) $18 + (6 - 3)^2 \times 8 \div 4 =$

Answer the following questions and show your work.

28) The MPH soccer team practices for $1\frac{3}{4}$ hours per day, 5 days a week. How many total hours do they practice every week if they don't have any games?

29) A flight leaves the Syracuse airport every $1\frac{1}{4}$ minutes. How many flights will leave in half an hour?

30) Mr. Smith, the electrician, charges \$150 for a visit, plus \$75 for each hour that he is at the house. Ms. Crosby, the plumber, charges \$180 per hour.

- a. Write an **equation** that represents the cost of a call for x hours for the electrician.
- b. Write an **equation** that represents the cost of a call for x hours for the plumber.
- c. After how many hours would the cost for each be the **same**?
- d. If you hired them both for 6 hours, how much would it **cost**?

For each problem, solve the inequality and graph the solution on a number line.

31) $8x \geq 2x - 24$

32) $x - 3x \geq -4x - 5$

33) $4x + 1 < -(5 + 2x)$

34) $2(3x - 5) > 2x + 6$

Do the following long division problems. Round your answer to two decimal places.
Please show your work.

35) $19 \overline{)228} =$

36) $4 \overline{)515}$

Factor into prime factors (factor trees). Every factor must be a prime number.

37) $45 =$

38) $244 =$

Convert to a percent. Show your work.

Example: $\frac{5}{8} = 62.5\%$

$\frac{3}{7} = 42\frac{6}{7}\%$

39) $\frac{3}{50} =$

40) $\frac{6}{7} =$