Summer Work Packet for MPH Math Classes

Students going into Algebra AC (7th, 8th, 9th)
Sept. 2017

Name: _____

7ᵗʰ GRADE ONLY
PRE-ALGEBRA DEMYSTIFIED

June 20, 2016

Dear SEVENTH GRADE Parents,

Your son/daughter is scheduled to take an accelerated Algebra class, Algebra 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 <u>Pre-Algebra Demystified</u> in preparation for his/her advanced work in Algebra AC 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 Chapters 3 and most of 4, but they should review it anyway so it is fresh in their minds. They should work through chapter 5-8 and then 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 AC. This will be turned in on 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!

Chris Schroth, teacher
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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 this packet to be graded, and/or to have a test on this material during the first marking period. If you have any questions, please email Mr. Schroth at **cschroth@mphschool.org** or Mrs. Meehan at **dmeehan@mphschool.org**.

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

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

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

2) $6\frac{7}{9} - 6\frac{1}{2} =$

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

4) $1\frac{1}{2} \bullet -2\frac{2}{3} =$

5) $6 - 2\frac{8}{11} =$

6) $\frac{1}{2} \bullet \frac{5}{6} =$

7) $2\frac{1}{16} + 2\frac{1}{3} =$

8) $\frac{7}{8} \div \frac{2}{3} =$

9) $4\dfrac{1}{2} + 6\dfrac{2}{5} =$

10) $\dfrac{8}{21} \bullet 2\dfrac{7}{16} =$

11) $-3\dfrac{1}{4} \div 1\dfrac{7}{8} =$

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

13) $3\dfrac{1}{4} - 6\dfrac{5}{6} =$

16) $-3\dfrac{3}{5} - 5\dfrac{11}{15} =$

17) $\dfrac{5}{6} \bullet 2 =$

18) $3\dfrac{1}{3} \div \dfrac{5}{6} =$

19) $3\frac{1}{4} \div 1\frac{7}{8} =$

20) $-\frac{3}{4} \cdot -\frac{8}{9} =$

21) $-5\frac{1}{2} - \left(-2\frac{7}{8}\right) =$

22) $6\frac{5}{6} + -3\frac{7}{9} =$

Solve for x. Please show your work. Check.

23) $4x - 8 = 8x$

24) $-45 = 5\left(\frac{2x}{5} - 3\right)$

25) $3(x + 5) = -18$

26) $6x + 9 = -4x + 29$

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

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

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

27) A (–3, 1); B (4, 5)   28) A (–1, –3); B (2, –6)

29) A(0, 8); B(3, 2)   30) $A\left(\dfrac{3}{4}, \dfrac{3}{2}\right)$; $B\left(\dfrac{11}{4}, \dfrac{5}{2}\right)$

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 = slope and b = y-intercept. Thus, for $y = \dfrac{2}{3}x + 2$, m = $\dfrac{2}{3}$
and b = 2, so the y-intercept is (0, 2). To graph, use the following steps:

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

31) $y = \dfrac{1}{2}x - 1$

32) $y = -3x - 1$

33) $y = -\dfrac{2}{3}x + 4$

Simplify completely. Remember PEMDAS. Please show your work.

34) $1 + 2 - 3 \cdot 4 \div 2^2 =$

35) $5 \times 3^2 - (7 + 3) \div 2 =$

36) $52 + |-6| \times (9 - 7) \div 2^2 =$

37) $18 + (6 - 3)^2 \times 8 \div 4$

Story problems. Please show your work.

38) At 6 p.m. the temperature was 4°C. By 10 p.m. the temperature had dropped 7°C. What was the temperature at 10 p.m.?

39) A-Z Publishing had profits of $4,800 in February. A-Z had the same profits for each week of February. What were the profits per week?

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

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

42) Dr. Crosby makes house calls. He charges $125 for the house call and $175 for each hour that he is at the house. Dr. Crosby charged $475 for a visit this morning. Write an equation that represents the number of hours (h) that Dr. Crosby spent at the house and solve it for h.

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

43) $2x \leq 10$

44) $7x \geq 2x - 25$

45) $4x + 1 < - (5 + 2x)$

46) $2(3x - 5) > 2x + 6$

47) $x - 3x \geq -4x - 7$

Simplify completely. Be ready to explain why your answer is correct. NO CALCULATOR, please!

48) $-5+8=$

49) $6-17=$

50) $-3-(-11)=$

51) $8\cdot(-4)=$

52) $40\div(-5)=$

53) $-20-(-13)=$

54) $12\cdot(-7)=$

55) $-23+(-18)=$

56) $2\cdot(-6)\div(-4)(-5)=$

57) $237\cdot12=$

58) $-6-4=$

59) $-6\cdot(-8)=$

60) $2-(-5)=$

61) $-72\div(-9)=$

62) $-6+(-3)-4=$

63) $3(5)-8(4)=$

64) $128\div8=$

65) $6\cdot7=$

66) $16\div4-7\cdot4=$

67) $14-9+20-3=$

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

68) 24 =

69) 121 =

70) 105 =

71) 81 =

Convert to a percent. Show your work.   Example: $\frac{5}{8} = 62.5\%$ $\frac{3}{7} = 42\frac{6}{7}\%$

72) $\frac{3}{4} =$

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

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

75) $\frac{9}{4} =$

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

76) $19\overline{)228} =$

77) $4\overline{)515}$

78) $13\overline{)1915}$

79) $6\overline{)14{,}384}$

80) Each day different groups of campers go from the mainland to a nearby island. On the first day 10 went over to the island and 2 came back. On the second day, 12 went over and 3 came back. If this pattern continues, how many would be on the island at the end of a week? How many would have gone and returned? Describe the pattern you used and how you found your answers.

81) A bat ate a total of 1,050 dragon flies over four consecutive nights. Each night she ate 25 more than she ate the night before. How many did she eat each night? Solve this algebraically, if you can. Explain.

82) Evelyn is reading about Windermere Castle in Scotland. Many years ago, when prisoners were held in various cells in the dungeon area, they began to dig passages connecting each cell to all of the other cells in the dungeon. If there were 20 cells in all, what is the fewest number of passages that had to be created over the years? Show your work and explain.