

# **Summer Work Packet for MPH Math Classes**

**Students going into  
Algebra I C  
Sept. 2022**

**Name:** \_\_\_\_\_

**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 should be completed in the space provided or on a separate sheet of paper, by the first day of class. Show all work.**

**Students can expect to have a test on this material during the first marking period. If you have any questions, email Mr. Ochs at [jochs@mphschool.org](mailto:jochs@mphschool.org)**

**\*\*You will need a TI-84<sup>+</sup> calculator for this class.\*\***

**Fractions: Add, subtract, multiply or divide the fractions. Show all work.**

1.  $2\frac{7}{10} + 3\frac{1}{5}$

5.  $1\frac{2}{3} \cdot -2\frac{2}{5}$

2.  $-4\frac{2}{3} - 3\frac{7}{12}$

6.  $-\frac{8}{21} \cdot -2\frac{7}{16}$

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

7.  $3\frac{3}{4} \div 1\frac{7}{8}$

4.  $8 - 2\frac{8}{x}$

8. 
$$\frac{\frac{22}{9}}{\frac{55}{12}}$$

9.  $24 \cdot \frac{5}{12}$

10.  $-5\frac{1}{2} - (-1\frac{7}{8})$

**Solve for x. Show your work and make sure all answers are fully simplified.**

11.  $8x = 4x + 18$

13.  $7(x + 2) = 2x - 21$

12.  $\frac{2}{3}x = \frac{1}{4}x + 10$

14.  $5\left(\frac{2x}{5} - 4\right) = 45$

**Combining like terms.** Example:  $3(m + n) - 2(3m - 4n) = 3m + 3n - 6m + 8n = -3m + 11n$

15. Simplify  $3x + 4y - 4x - 13y$

16. Simplify  $-3(m - n) + 4n - 5m$

17. Simplify  $5x - (x - y)$

18. Simplify  $3(x - 7y) - 9(y - 3y) + 4(x - 2y)$

19. 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 \$175 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. Using your equations from part a and b, how many hours would the cost for each be the **same**?

d. If you hired them both for 5 hours, how much would it **cost**?

**Find the slope of the line connecting points A and B. Show all work.**

Formula for slope:  $m = \frac{y_2 - y_1}{x_2 - x_1}$

Example: If point A is (5, 3) and point B is (-1, 1), then  $m = \frac{3-1}{5-(-1)} = \frac{2}{6} = \frac{1}{3}$

Calculate the slope of the following.

20. A (-1, 3) and B (5, 4)

22. A (0, 8) and B (2, 4)

21. A (-1, -6) and B (2, -3)

23. A  $\left(\frac{3}{4}, \frac{3}{2}\right)$  and  $\left(\frac{11}{4}, \frac{5}{2}\right)$

**\*\*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 that in the form  $y = mx + b$ ,  $m$  = slope and  $b$  = 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) Plot the y-intercept.**
- b) Locate the other points using the slope.**
- c) Connect the points with a line.**

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

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

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



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

Recall that when dividing or multiplying by a negative the inequality sign flips.

27.  $-8x \geq 2x - 40$

29.  $4x + 1 < 10 - (5 - 2x)$

28.  $2\frac{1}{10}x - 15 \geq 27$

30.  $2(8x - 5) > 2x + 6$