Summer Work Packet for MPH Math Classes

Students going into
Algebra I C
Sept. 2021

Name: _____

7^{th}, 8^{th}, and 9^{th} 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. Show all work.

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

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

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

4. $8 - 2\frac{8}{11}$

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

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

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

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 $3x + 4y - 4x + 3y - z$

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.

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

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

20. A (–1, 3) and B (5, 4)

21. A (–1, –6) and B (2, –3)

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

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 the 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 = ½ x – 1 m = _____ b = _____ y-intercept _____

25. y = –3x – 1 m = _____ b = _____ y-intercept _____

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

For each problem, solve the inequality and graph the solution on a number line.
Recall that when dividing or multiplying by a negative number the inequality sign changes direction.

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

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

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

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