Summer Work Packet for MPH Math Classes

Students going into Algebra II/Trig C

Sept. 2021

Name: _____

Hello Students!

This packet is designed to help you stay current with your math skills.

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

These problems need to be completed, in the space provided, before the start of school. Be sure to show all work. We will check this assignment in class. Remember, it's about the process, not just the answer.

Please try to pace yourself throughout the summer. Complete one problem every other day, or 4 problems per week is a nice way to work through the packet.

If you have any questions, please feel free to email me at <u>aellerton@mphschool.org</u> or Mrs. Meehan at <u>dmeehan@mphschool.org</u>.

Have a wonderful summer, and we look forward to seeing you in the fall!

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You will need a TI-84$^+$ calculator for this class.
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Name _____

Show all work! Do not round any answers. Write the answers as a fraction if the decimal is repeating or the calculator does not show the whole decimal. Show all work on the packet.

I. Order of Operations: We will use this all year long.

Grouping (parentheses), **E**xponents, **M**ultiplication/**D**ivision, then **A**ddition/**S**ubtraction, all from left to right.

1. $36 - 5^2 \cdot 2 + 7$

2. $\dfrac{2(7-10)^2}{4^3 + (-3)^3}$

II. Solving inequalities for a variable and checking: Please show your steps and give the exact answer. Graph your answer on a number line.

3. $-8 < \frac{2}{3}x - 4 < 10$

III. Solving equations for a variable and checking: Please show your steps and give the exact answer. <u>Show your check</u>.

4. $4(-3x+1) = -10(x-4) - 14x$

5. $\dfrac{3}{4}(\dfrac{4}{5}x - 2) = \dfrac{11}{4}$

IV. We will be working with fractions all year long. Please do the following problems <u>without</u> a calculator. Show each step.

6. $\dfrac{7}{9} + \dfrac{5}{12}$

7. $\dfrac{17}{6} - \dfrac{15}{18}$

8. $4\dfrac{2}{7} \times 8\dfrac{4}{5}$

9. $3\dfrac{2}{5} \div 9\dfrac{4}{15}$

V. Absolute Values equations.

We will be discussing new concepts in Algebra 2. Please discuss the types of answers you would get and why for the following equation and make sure you use the definition of <u>absolute value</u> in your answer.

10. $|2x - 6| = 10$

VI. Linear functions: Rewrite each function in slope-intercept form (y = mx + b). Graph each function on the graph using at least three points, including the x-intercept and y-intercept. Label the line and the points.

11. $2x + 3y = 12$
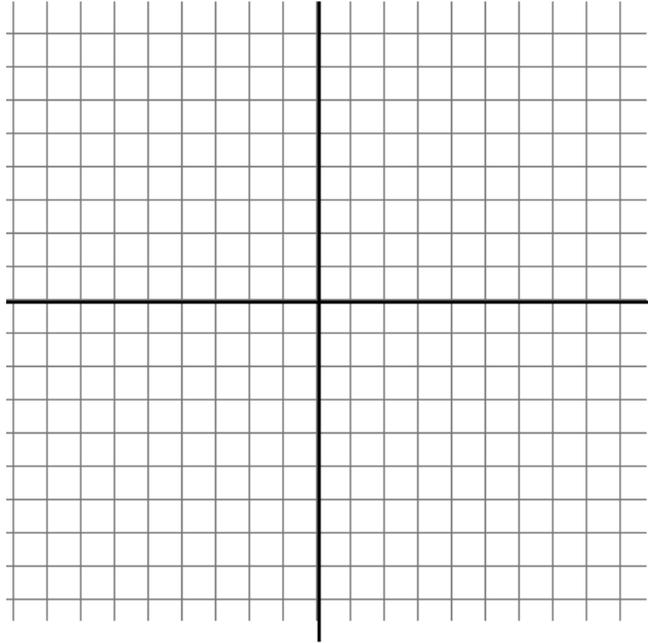
VII. Solve the following system of equations using the <u>substitution or elimination method</u> and state the point (x, y) where they intersect. <u>Check</u> your solution in BOTH equations.

12. $y = 4x - 5$
         $-3x - y = -16$

13. $y - 2x = 3$
         $-5x - y = -7$

Check:

Check:

VIII. Factor the following completely and solve for x.

14. $8x^2 - 4x = 0$

15. $9x^2 - 4 = 0$

16. $x^2 + 10x + 25 = 0$

17. $x^2 - 2x = 0$

18. $x^2 - 16x + 64 = 0$

19. $3x^2 - 8x + 4 = 0$

IX. Simplifying algebraic expressions with exponents: Use only <u>positive</u> <u>exponents</u> in your answer and simplify completely.

20. $x^4(x^3 \times x^2)^2$

21. $(a^{-2}b^3c^{-4})^2(ab)^3$

22. $(12xyz)(2x^5y^{12}z^7)$

23. $\dfrac{3xyz}{4x^6y^{-2}z^9} \cdot \dfrac{12x}{9yz}$

X. Simplify the following radicals. Make sure that all radicals are completely reduced and that you do not have any radicals in the denominator. Leave your answer in radical form.

24. $\sqrt{144}$

25. $\sqrt{75}$

26. $\dfrac{\sqrt{72}}{\sqrt{8}}$

27. $\dfrac{3}{4}\sqrt{200}$

28. $\dfrac{\sqrt{96}}{\sqrt{4}}$

29. $\sqrt{32} \times \sqrt{125}$

30. Expand $(x + 3)^3$ and distribute.