

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

**Students going into Math 7  
Sept. 2020**

**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, or 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. We will check this assignment in class. We will have quizzes on these topics in the following weeks.**

**Last year many of you read The Number Devil over the summer. We will be using The Number Devil again for various activities throughout the year. Read Chapters 4, 5, 6, and 10 in The Number Devil to prepare. Take notes and be ready to discuss what you have read when we return to school.**

**If you have any questions, please email Mrs. LaPointe at [klapointe@mphschool.org](mailto:klapointe@mphschool.org) or Mrs. Meehan at [dmeehan@mphschool.org](mailto:dmeehan@mphschool.org).**

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

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**Adding Fractions-** Remember that you must have a common denominator to add fractions.  
You can work the problems across (horizontally) or up and down (vertically).

Example 1:  $\frac{3}{4} + \frac{5}{6} = \frac{9}{12} + \frac{10}{12} = \frac{19}{12} = 1\frac{7}{12}$

Example 2: 
$$\begin{array}{r} \frac{2}{3} = \frac{4}{6} \\ + \frac{1}{2} = \frac{3}{6} \\ \hline \frac{7}{6} = 1\frac{1}{6} \end{array}$$

1.  $2\frac{1}{6} + 3\frac{5}{6} =$

3. 
$$\begin{array}{r} 6\frac{3}{8} \\ + 2\frac{3}{32} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 4\frac{7}{12} \\ + 1\frac{5}{8} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} \frac{8}{9} \\ + \frac{8}{15} \\ \hline \end{array}$$

**Subtracting Fractions-** Remember that you must have a common denominator to subtract fractions. You can work the problems across (horizontally) or up and down (vertically).

Example 1:  $\frac{3}{4} - \frac{5}{8} = \frac{6}{8} - \frac{5}{8} = \frac{1}{8}$

Example 2:  $\frac{2}{3} = \frac{10}{15}$   
 $-\frac{1}{5} = \frac{3}{15}$   

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 $\frac{7}{15}$

5.  $\frac{17}{21} - \frac{8}{21} =$

7.  $6\frac{7}{10}$   
 $-3\frac{4}{5}$   

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6.  $4\frac{2}{9}$   
 $-3\frac{1}{6}$   

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8.  $4\frac{5}{9}$   
 $-3\frac{4}{5}$   

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**Multiplying fractions:** When you are multiplying fractions, you do not need a common denominator. You must first change any whole number or mixed number to an improper fraction. Remember when you are multiplying fractions it is easier to simplify first, if possible, and then multiply the numerators and multiply the denominators.

EXAMPLE:  $\frac{24}{25} \times \frac{15}{28} = \frac{6}{5} \times \frac{3}{7} = \frac{18}{35}$

EXAMPLE:  $4\frac{2}{3} \times 15 = \frac{14}{3} \times \frac{15}{1} = 14 \times 5 = 70$

9.  $\frac{2}{3} \times \frac{1}{2} =$

11.  $18 \times \frac{4}{27} =$

10.  $2\frac{2}{27} \times 3\frac{3}{8} =$

12.  $\frac{42}{35} \times \frac{10}{21} =$

**Dividing fractions:** The rule for dividing fractions and mixed numbers is to first convert each number to a fraction (proper or improper). Then keep the first number the same, change the problem to multiplication and use the reciprocal of the second fraction. Now you can follow the rules from multiplication. Be sure your answer is in simplest form.

EXAMPLE:  $3\frac{3}{5} \div 2\frac{4}{7} = \frac{18}{5} \div \frac{18}{7} = \frac{18}{5} \times \frac{7}{18} = \frac{7}{5} = 1\frac{2}{5}$

13.  $\frac{27}{4} \div \frac{18}{5} =$

15.  $18 \div \frac{54}{7} =$

14.  $6\frac{3}{4} \div 5\frac{5}{9} =$

16.  $6\frac{3}{16} \div 18 =$

**Prime Factorization:** Use a *factor tree* to find the prime factors of each number. Remember a prime factor is a number that has exactly 2 factors, 1 and itself.

EXAMPLE: 360

$$\begin{array}{r} 360 \\ 36 \times 10 \\ 4 \times 9 \times 2 \times 5 \\ 2 \times 2 \times 3 \times 3 \times 2 \times 5 \text{ ----- } 2^3 \cdot 3^2 \cdot 5 \end{array}$$

17. 120

19. 75

18. 98

20. 64

Fill in the blank with  $>$ ,  $<$  or  $=$  to make a true statement that compares the following decimals.

21.  $3.230$  \_\_\_\_\_  $3.23$

22.  $2.1$  \_\_\_\_\_  $1.25$

23.  $35.9$  \_\_\_\_\_  $35.896$

24.  $54.25$  \_\_\_\_\_  $54.3$

Round each to the nearest whole number.

25.  $6.3$  \_\_\_\_\_

26.  $45.7$  \_\_\_\_\_

27.  $98.5$  \_\_\_\_\_

28.  $555.10$  \_\_\_\_\_

Round each number to the nearest tenth.

29.  $10.38$  \_\_\_\_\_

30.  $.418$  \_\_\_\_\_

31.  $9.99$  \_\_\_\_\_

Round each number to the nearest hundredth.

32.  $0.4508$  \_\_\_\_\_

33.  $4.782$  \_\_\_\_\_

34.  $.7859$  \_\_\_\_\_

35.  $5.679$  \_\_\_\_\_



Perform the indication operations. Follow the examples shown below.

**Add:** Line up the decimal points.  $4.56+2.57+33.567+.2534$   
 You may insert **zeros** to help you  
 keep the columns lined up.

$$\begin{array}{r} 4.5600 \\ 2.5700 \\ 33.5670 \\ + \underline{.2534} \\ 40.9504 \end{array}$$

**Subtraction:** Line up the decimal points.  $303.57 - 89.2534$   
 You may insert **zeros** to help you  
 keep the columns lined up.

$$\begin{array}{r} 303.5700 \\ - \underline{89.2534} \\ 214.3166 \end{array}$$

**Multiplication:** Line up the **numbers** to multiply.  
**COUNT** up the places after the decimal point  
 and mark off that many starting from the right.

$$\begin{array}{r} 6.312 \quad (3 \text{ places}) \\ \times .83 \quad (2 \text{ places}) \\ \hline 18936 \\ \underline{504960} \\ 5.23896 \quad (5 \text{ places}) \end{array}$$

Notice, .83 is less than 1, so your answer is smaller  
 than the number you started with.

**Division:** Move the decimal point to the end of the number on the outside (divisor). Move the decimal point the same amount of places for the number inside (dividend) the division sign. Place the decimal point in the answer position (quotient). Then, divide.

$$507 \div 7.8 \Rightarrow 7.8 \overline{)507} \Rightarrow 78 \overline{)5070.} \Rightarrow 78 \overline{)5070.} \Rightarrow 78 \overline{)5070.}$$

$$\begin{array}{r} 65. \\ \underline{-468} \\ 390 \\ \underline{-390} \\ 0 \end{array}$$

**Add.**

36.  $572.01 + 21 + .1$

37.  $1.234 + 62.3 + 32.32$

**Subtract.**

38.  $83 - 26.4725$

39.  $16.4 - 2.49$

**Multiply.**

40.  $4.57 \times 8.3$

42.  $7.058 \times .17$

41.  $234.56 \times 1000$

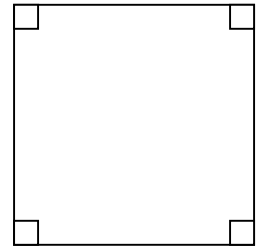
**Divide.**

43.  $71.25 \div 7.5$

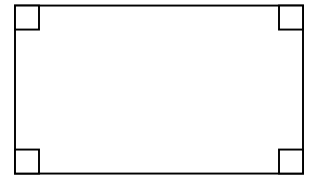
44.  $6308 \div 7.6$

Find a) the perimeter and b) the area of each shape.

45. A square with a side of 7 meters.  
( $P = 4s$  and  $A = s^2$ )



46. A rectangle with width of  $6\frac{1}{2}$  inches and length of 14 inches.  
( $P = 2l + 2w$  and  $A = lw$ )



**Solve each. Show your work. (You may use ratios/proportions, if you would like.)**

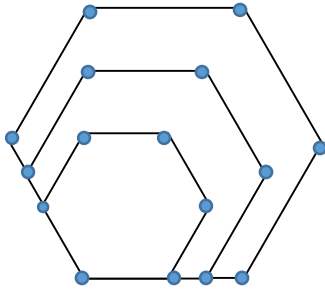
47. One can of pineapple chunks is \$2. How many can you purchase for \$10?

48. One pound of seedless grapes is \$1.89. How much will three and a half pounds cost?

49. If 4 bunches of basil costs \$11, how much will one bunch cost?

50. If Spencer can drive 480 miles on 12 gallons of gasoline, how many miles per gallon does his car get?

51. Oh brother! I am so bored! Mr. Blather, my science teacher, is lecturing on the weather patterns in the Arctic Circle. YAWN! YAWN! To keep myself awake, I started doodling. I started with one hexagon (6-sided shape), and then kept drawing larger and larger hexagons (see diagram). I must be really bored because I found myself wondering how many vertices (corner points) I would have altogether after the fiftieth (50th) hexagon. What's the answer? Show your work and explain in complete sentences how you thought about the problem.



52. I am thinking of a three-digit number. It is an **odd** multiple of 3, and the **product** of its digits is 24. It is **larger** than 225. What are **all** the numbers of which I could be thinking? Show your work and explain in complete sentences how you thought about the problem.

53. What part of math do you like best? What part of math do you like the least?

HAVE A GREAT SUMMER!! I'm looking forward to seeing you in September!