Summer Work Packet for MPH Math Classes

Students going into Math 7
Sept. 2018

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.

If you have any questions, please email Mrs. Meehan at dmeehan@mphschool.org .

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

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: $\frac{2}{3}=\frac{4}{6}$

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

$\frac{7}{6}=1\frac{1}{6}$

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

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

3. $4\frac{7}{12}$
   $+1\frac{5}{8}$

4. $5\frac{1}{4}$
   $+2\frac{3}{10}$

5. $\frac{3}{4}$
   $+\frac{4}{7}$

6. $6\frac{3}{8}$
   $+2\frac{3}{32}$

7. $3\frac{7}{10}$
   $+2\frac{4}{15}$

8. $\frac{8}{9}$
   $+\frac{8}{15}$

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: $\frac{2}{3}=\frac{10}{15}$

$-\frac{1}{5}=\frac{3}{15}$

$\frac{7}{15}$

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

10. $4\frac{2}{9}$

$-3\frac{1}{6}$

11. $6\frac{7}{12}$

$-2\frac{5}{9}$

12. $7\frac{1}{4}$

$-3\frac{3}{10}$

13. $3\frac{3}{4}$

$-1\frac{4}{9}$

14. $5\frac{3}{8}$

$-2\frac{7}{10}$

15. $6\frac{7}{10}$

$-3\frac{4}{5}$

16. $4\frac{5}{9}$

$-3\frac{4}{5}$

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

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

18. $6\frac{3}{4}\times\frac{2}{9}=$

19. $2\frac{2}{27}\times 3\frac{3}{8}=$

20. $18\times\frac{4}{27}=$

21. $6\frac{3}{16}\times\frac{8}{27}=$

22. $\frac{1}{8}\times\frac{1}{3}=$

23. $8\frac{3}{4}\times 7\frac{1}{9}=$

24. $\frac{16}{27}\times\frac{9}{28}=$

25. $\frac{20}{33}\times 11=$

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

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

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

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

29. $\frac{2}{3} \div \frac{1}{2} =$

30. $6\frac{3}{4} \div 5\frac{5}{8} =$

31. $\frac{9}{16} \div 3\frac{3}{8} =$

32. $18 \div \frac{54}{7} =$

33. $6\frac{3}{16} \div 18 =$

34. $8\frac{3}{10} \div 7\frac{1}{15} =$

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

360

36 × 10

4 × 9 × 2 × 5

2 × 2 × 3 × 3 × 2 × 5 ----- $2^3 \cdot 3^2 \cdot 5$

35. 120

36. 50

37. 98

38. 75

39. 80

40. 200

41. 48

42. 64

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

43. 3.230 _____ 3.23

44. 2.2 _____ 2.879

45. 2.1 _____ 1.25

46. 35.9 _____ 35.896

47. 54.25 _____ 54.3

Round each to the nearest whole number.

48. 6.3 _____

49. 45.7 _____

50. 98.5 _____

51. 555.10 _____

Round each number to the nearest tenth.

52. 0.54 _____

53. 10.38 _____

54. .418 _____

55. 9.99 _____

Round each number to the nearest hundredth.

56. 0.4508 _____

57. 4.782 _____

58. .7859 _____

59. 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.

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

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

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

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

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

$$\begin{array}{rl} 6.312 & \text{(3 places)} \\ \underline{\text{x } .83} & \underline{\text{(2 places)}} \\ 18936 & \\ \underline{504960} & \\ 5.23896 & \text{(5 places)} \end{array}$$

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.

$$507 \div 7.8 \Rightarrow 7.8\overline{)507} \Rightarrow 78\overline{)5070.} \Rightarrow 78\overline{)5070.}\text{ (quotient 6\_; }-468\text{; }39) \Rightarrow 78\overline{)5070.}\text{ (quotient 65.; }-468\text{; }390\text{; }-390\text{; }0)$$

Add.

60. 72.32 + 27.68

61. 635.4 + 86.39

62. 572.01 + 21 + .1

63. 1.234 + 62.3 + 32.32

Subtract.

64. $45.5479 - 8.325$

65. $83 - 26.4725$

66. $202.0062 - 17.1$

67. $16.4 - 2.49$

Multiply
.

68. 4.57×8.3

69. $7.058 \times .17$

70. $.65 \times .34$

71. 234.56×1000

Divide.

72. 103.5 ÷ 4.5

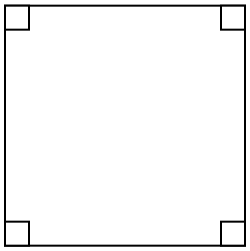
73. 23.52 ÷ .98

74. 71.25 ÷ 7.5

75. 6308 ÷ 7.6

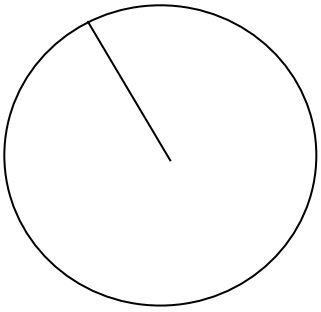
Find <u>a) the perimeter</u> and <u>b) the area</u> of each shape.

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

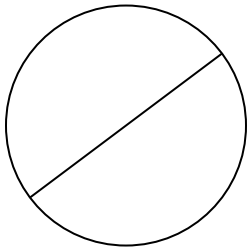


77. A rectangle with width of 6 ½ inches and length of 14 inches.
    ($P = 2l + 2w$ and $A = lw$)

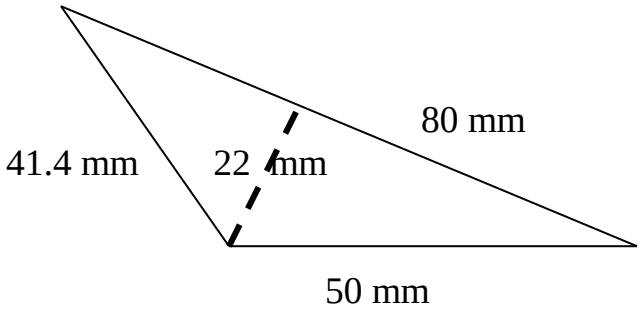
78. A circle of radius 8 cm.
    ($C = 2\pi r$ and $A = \pi r^2$)



79. A circle of diameter 12 mm (hint: d = 2r)
(C = $2\pi r$ and A = πr^2)

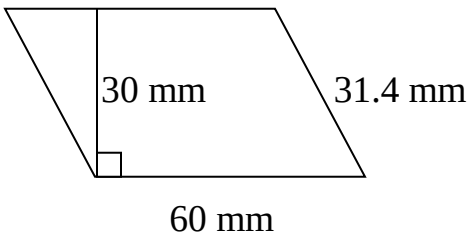


80. A triangle with height 22 mm and base 80 mm.
(A = $^1/_2$ bh)

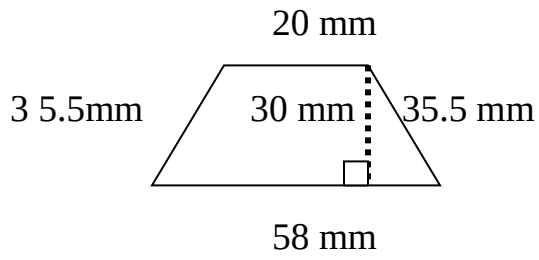


*****For the next 3 you can look up the area formulas or split the shapes into triangles and quadrilaterals.*****

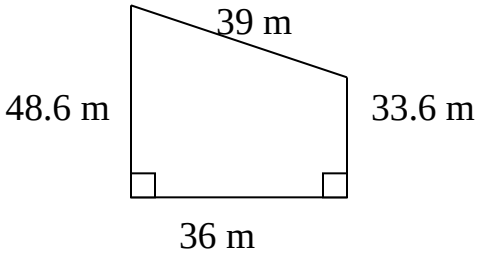
81. Parallelogram



82. Trapezoid



83. Trapezoid



Solve each. Show your work (you may use a proportion, if you would like).

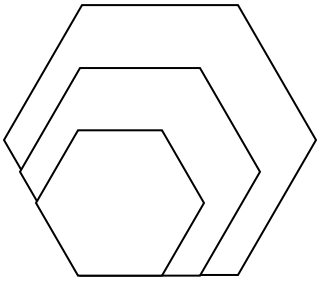
84. One can of pineapple chunks is $2. How many can you purchase for $10?

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

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

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

88. 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, and then kept drawing larger and larger hexagons (see diagram). I must be really bored because I found myself wondering how many dots 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.



89. 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.

90. 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!