Summer Work Assignment

Your Schoology Code: QXZN-DZBJ-9MW69

Happy summer!! I hope you all take time to relax and have some fun over your break. While it is so important to have fun it also important to keep your basic math skills sharp for the 2020 school year. Attached you will find the details for completing your math summer assignment.

- ALL pages are **due** no later than **Friday, SEPTEMBER 11th BY 4:00 pm**
- The assignment must be submitted in Schoology in its entirety. Please DO NOT submit pages separately. You must submit answer sheet and written work.
- Each day the assignment is late 5 points will be deducted from your grade
- The assignment **WILL NOT** be accepted past September 15th ***I am very firm on not accepting assignments past 9/15. I give plenty of time to complete the work and even give the whole first week back to school to complete it. There are NO EXSCUSES***
- Do NOT complete #85-92
- All work must be shown to get credit for the assignment. This work may be completed on scratch paper but, MUST BE NUMBERED AND NEAT.
- Please submit final answers on the answer sheet provided.
- If you are unable to submit the assignment through Schoology you may hand in a hard copy no later than **Friday, SEPTEMBER 11TH during your class period.**

THIS IS ASSIGNMENT WILL BE COUNTED AS A QUIZ GRADE

Name: _____   **ANSWER SHEET**

1. _____	16. _____	31._____
2._____	17. _____	32._____
3._____	18. _____	33._____
4._____	19._____	34._____
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6._____	21. _____	36._____
7._____	22. _____	37. _____
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Operations with Integers

Adding Integers

- <u>Negative + Negative</u>: Add the absolute values of the two numbers and make the answer negative.

  ex: -5 + (-9) $\longrightarrow$ 5 + 9 = 14 $\longrightarrow$ answer: $\boxed{-14}$

- <u>Negative + Positive (or Positive + Negative)</u>: Subtract the absolute values of the two numbers (larger minus smaller) and take the sign of the number with the greater absolute value.

  ex: -7 + 12 $\longrightarrow$ 12 - 7 = 5 $\longrightarrow$ 12 > 7, so answer is positive $\longrightarrow$ answer: $\boxed{5}$

  ex: 6 + (-9) $\longrightarrow$ 9 - 6 = 3 $\longrightarrow$ 9 > 6, so answer is negative $\longrightarrow$ answer: $\boxed{-3}$

Subtracting Integers

- Keep the first number the same, change the subtraction sign to an addition sign, and change the sign of the second number. Then use the integer addition rules.

  ex: -3 - 9 $\longrightarrow$ -3 + (-9) = $\boxed{-12}$

  ex: 15 - (-8) $\longrightarrow$ 15 + 8 = $\boxed{23}$

  ex: -6 - (-4) $\longrightarrow$ -6 + 4 = $\boxed{-2}$

Multiplying & Dividing Integers

Ignore the signs and multiply or divide as usual. Then determine the sign of the answer using the following rules:

- Negative · or ÷ Negative = Positive
- Negative · or ÷ Positive (or Positive · or ÷ Negative) = Negative

  ex: -3 · (-5) $\longrightarrow$ 3 · 5 = 15 $\longrightarrow$ neg · neg = pos $\longrightarrow$ answer: $\boxed{15}$

  ex: 48 ÷ (-6) $\longrightarrow$ 48 ÷ 6 = 8 $\longrightarrow$ pos ÷ neg = neg $\longrightarrow$ answer: $\boxed{-8}$

Order of Operations

Parentheses
Exponents
Multiplication & Division (left to right)
Addition & Subtraction (left to right)

Find the sum or difference.

1. -80 + 77

2. 77 + 160

3. -64 + (-33)

4. 104 - (-92)

5. -105 - (-122)

6. 185 - (-154)

7. -53 - (-59)

8. -6 + (-35)

9. 15 - (-26) - (-39)

10. -93 + 191 + (-179)

11. 18 + (-34) + 52

12. -50 - (-93) + (-17)

Find the product or quotient.

13. 60 ÷ 12

14. -194 ÷ (-2)

15. 88 · (-2)

16. -12 · 10

17. -10 · (-11)

18. 90 ÷ (-6)

19. 3 · (-59)

20. -7 · (-2)

21. -28 ÷ (-88) · (-22)

22. -56 · 140 ÷ (-80)

23. 108 ÷ (-11) · (-11)

24. -84 · (-17) ÷ 42

Evaluate the numerical expression. (Be sure to use the order of operations!)

25. -78 + (-2) · (-56)

26. -65 + 6 ÷ (-3) + 40

27. -94 - (84 - 10)

28. 43 + (-23) - (-57)

29. -15 - (-11) + 5 · (-4)

30. -26 - (-64) + (-93)

31. -84 ÷ 4 + (-20)

32. -56 + (-50) + (-10) · (-9)

Operations with Rational Numbers

Adding & Subtracting Rational Numbers

Determine whether you should add or subtract using integer rules. Then add or subtract.

- Decimals: Line up the decimal points. Then add or subtract and bring the decimal point down. Use integer rules to determine the sign of the answer.

  ex: $-9.8 + 6.24$ $\longrightarrow$ neg + pos: subtract $\longrightarrow$ $\begin{array}{r} 9.80 \\ -\,6.24 \\ \hline 3.56 \end{array}$ $\longrightarrow$ answer: -3.56

- Fractions/Mixed Numbers: Find a common denominator and then add or subtract. Borrow or convert an improper fraction answer, if necessary. Use integer rules to determine the sign of the answer.

  ex: $5\frac{3}{4} - \left(-3\frac{7}{8}\right)$ $\longrightarrow$ $5\frac{3}{4}$ $3\frac{7}{8}$ $\longrightarrow$ pos + pos: add $\longrightarrow$ $\begin{array}{r} 5\frac{3}{4}=\frac{6}{8} \\ +\,3\frac{7}{8}=\frac{7}{8} \\ \hline 8 \quad \frac{13}{8} \end{array}$ $\longrightarrow$ answer: $9\frac{5}{8}$

Multiplying & Dividing Rational Numbers

Determine the sign of the answer using integer rules. Then multiply or divide.

- Multiplying Decimals: Ignore the decimal points. Multiply the numbers. Then count the decimal places in the problem to determine the location of the decimal point in the answer.

  ex: $-9.23 \cdot (-1.1)$ $\longrightarrow$ neg · neg = pos $\longrightarrow$ $\begin{array}{r} 9.23 \\ \times\,1.1 \\ \hline 923 \\ 9230 \\ \hline 10153 \end{array}$ $\longrightarrow$ answer: 10.153

- Dividing Decimals: Move the decimal in the divisor to the end of the number. Move the decimal in the dividend the same number of places and then bring it straight up in quotient.

  ex: $-5.2 \div 0.2$ $\longrightarrow$ neg ÷ pos = neg $\longrightarrow$ $02.\overline{)52.}\;^{26.}$ $\longrightarrow$ answer: -26

- Multiplying Fractions: Convert mixed numbers to improper fractions. Then cross-simplify. Multiply the numerators and multiply the denominators. Simplify if necessary.

  ex: $-1\frac{3}{4} \cdot \frac{6}{14}$ $\longrightarrow$ neg · pos = neg $\longrightarrow$ $\frac{\overset{1}{\cancel{7}}}{\underset{2}{\cancel{4}}} \cdot \frac{\overset{3}{\cancel{6}}}{\underset{2}{\cancel{14}}} = \frac{3}{4}$ $\longrightarrow$ answer: $-\frac{3}{4}$

- Dividing Fractions: Convert mixed numbers to improper fractions. Then flip the second fraction to its reciprocal and multiply the two fractions. Simplify if necessary.

  ex: $-\frac{1}{2} \div \left(-\frac{3}{8}\right)$ $\longrightarrow$ neg ÷ neg = pos $\longrightarrow$ $\frac{1}{\underset{1}{\cancel{2}}} \cdot \frac{\overset{4}{\cancel{8}}}{3} = \frac{4}{3}$ $\longrightarrow$ answer: $1\frac{1}{3}$

Find the sum, difference, product, or quotient.

33. $38.61 + 36.841$

34. $1.755 - 1.23$

35. $0.71 \cdot 9.2$

36. $13.12 \div 0.1$

37. $3.651 - (-12.63)$

38. $-3.9 + (-7.6)$

39. $17.6 \cdot 4.3$

40. $6 \cdot (-16.7)$

41. $26.474 - 14.527$

42. $-2.1 + 3.78$

43. $-6.15 \div (-8.2)$

44. $-12.8 \cdot (-4.88)$

Find the sum, difference, product, or quotient.

45. $15 \frac{1}{2} + 15 \frac{1}{4}$

46. $18 \frac{11}{20} - 17 \frac{1}{2}$

47. $2 \frac{1}{4} \cdot 1 \frac{4}{5}$

48. $3 \frac{1}{2} \div 1 \frac{3}{7}$

49. $3 \frac{1}{3} - 5 \frac{1}{9}$

50. $5 \cdot (-1 \frac{2}{5})$

51. $-4 \frac{2}{3} + (-1 \frac{3}{4})$

52. $- \frac{5}{6} \div (-2 \frac{1}{6})$

53. $9 \div (-4 \frac{1}{2})$

54. $-18 + 3 \frac{4}{5}$

55. $-5 \frac{2}{3} \cdot (-2 \frac{5}{6})$

56. $-5 \frac{3}{4} - (-3 \frac{7}{8})$

Solving Equations

Solving One-Step Equations

- Cancel out the number on the same side of the equation as the variable by using the inverse operation. (Addition/Subtraction; Multiplication/Division). Be sure to do the same thing to both sides of the equation!

ex: $6x = -18$ $\longrightarrow$ $\dfrac{6x}{6} = \dfrac{-18}{6}$ $\longrightarrow$ answer: $x = -3$

ex: $y + 23 = -9$ $\longrightarrow$ $\begin{array}{c} y + 23 = -9 \\ -23 \quad -23 \end{array}$ $\longrightarrow$ answer: $y = -32$

ex: $\dfrac{h}{3} = 4$ $\longrightarrow$ $3 \cdot \dfrac{h}{3} = 4 \cdot 3$ $\longrightarrow$ answer: $h = 12$

ex: $w - 13 = -5$ $\longrightarrow$ $\begin{array}{c} w - 13 = -5 \\ +13 \quad +13 \end{array}$ $\longrightarrow$ answer: $w = 8$

Solving Two-Step Equations

- Undo operations using inverse operations one at a time using the order of operations in reverse. (i.e.: undo addition/subtraction before undoing multiplication/division)

ex: $7x - 4 = -32$ $\longrightarrow$ $\begin{array}{c} 7x - 4 = -32 \\ +4 \quad +4 \end{array}$ $\longrightarrow$ $\dfrac{7x}{7} = \dfrac{-28}{7}$ $\longrightarrow$ answer: $x = -4$

ex: $\dfrac{j}{5} + 13 = 15$ $\longrightarrow$ $\begin{array}{c} \dfrac{j}{5} + 13 = 15 \\ -13 \quad -13 \end{array}$ $\longrightarrow$ $5 \cdot \dfrac{j}{5} = 2 \cdot 5$ $\longrightarrow$ answer: $j = 10$

ex: $\dfrac{b + 7}{3} = -2$ $\longrightarrow$ $3 \cdot \dfrac{b + 7}{3} = -2 \cdot 3$ $\longrightarrow$ $\begin{array}{c} b + 7 = -6 \\ -7 \quad -7 \end{array}$ $\longrightarrow$ answer: $b = -13$

Solve the one-step equation.

57. $19 + j = -34$

58. $m - 26 = 13$

59. $\frac{x}{5} = -3$

60. $12f = 216$

61. $g - (-31) = -7$

62. $\frac{h}{9} = 13$

63. $b + (-3) = -9$

64. $-4w = -280$

Solve the two-step equation.

65. $5m - 3 = 27$

66. $7 + \frac{y}{2} = -3$

67. $4 + 3r = -8$

68. $\frac{1}{2}p - 4 = 7$

69. $\frac{k+8}{3} = -2$

70. $\frac{f}{5} - (-13) = 12$

71. $-15 - \frac{g}{3} = -5$

72. $-8 + 4m = 2$

73. $-18 - \frac{3}{4}v = 3$

74. $\frac{-5+n}{4} = -1$

75. $3.5m + 0.75 = -6.25$

76. $2y + 3 = 19$

Proportions and Percent

Solving Proportions

- Set cross-products equal to each other and then solve the one-step equation for the given variable.

  ex: $\dfrac{5}{b} = \dfrac{4}{10}$ $\longrightarrow$ $5 \cdot 10 = 4b$ $\longrightarrow$ $\dfrac{50}{4} = \dfrac{4b}{4}$ $\longrightarrow$ answer: $b = 12.5$

Solving Percent Problems with Proportions

- Set up and solve a proportion as follows: $\dfrac{\%}{100} = \dfrac{part}{whole}$

  ex: 25 is what percent of 500? $\longrightarrow$ $\dfrac{x}{100} = \dfrac{25}{500}$ $\longrightarrow$ answer: $x = 5\%$

  ex: What is 15% of 88? $\longrightarrow$ $\dfrac{15}{100} = \dfrac{x}{88}$ $\longrightarrow$ answer: $x = 13.2$

  ex: 18 is 30% of what number? $\longrightarrow$ $\dfrac{30}{100} = \dfrac{18}{x}$ $\longrightarrow$ answer: $x = 60$

Solving Percent Problems with Equations

- Translate the question to an equation and then solve. (Be sure to convert percents to decimals or fractions.)

  ex: 20 is 40% of what number? $\longrightarrow$ $20 = 0.4x$ $\longrightarrow$ answer: $x = 50$

  ex: 8 is what percent of 32? $\longrightarrow$ $8 = 32x$ $\longrightarrow$ $x = 0.25$ $\longrightarrow$ answer: 25%

  ex: What is 25% of 88? $\longrightarrow$ $x = 0.25 \cdot 88$ $\longrightarrow$ answer: $x = 22$

Real-World Percent Problems

(This is just one way of many to solve real-world percent problems)

- Tax: Find the amount of tax using a proportion or equation. Then add the tax to the original amount to find the total cost.

- Discount: Find the amount of the discount using a proportion or equation. Then subtract the amount of discount from the original price to find the sale price.

Solve the proportion.

77. $\dfrac{h}{6} = \dfrac{20}{24}$

78. $\dfrac{5}{7} = \dfrac{c}{14}$

79. $\dfrac{6}{8} = \dfrac{21}{b}$

80. $\dfrac{30}{j} = \dfrac{26}{39}$

81. $\dfrac{5}{k} = \dfrac{15}{20}$

82. $\dfrac{32}{112} = \dfrac{a}{14}$

83. $\dfrac{16}{7} = \dfrac{18}{g}$

84. $\dfrac{w}{60} = \dfrac{15}{200}$

Solve the percent problem.

85. Find 15% of 85.

86. 6 is 75% of what number?

87. 40 is what percent of 320?

88. What is 20% of 45?

89. 70 is what percent of 350?

90. Find $33.\overline{3}$% of 81.

91. A $58 camera is on sale for 20% off. Find the sale price.

92. Find the total price of a $14.00 shirt including the 7% sales tax.