POND ROAD MIDDLE SCHOOL

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KNIGHTS

"TODAY'S LEARNERS, TOMORROW'S LEADERS"

June 21, 2017

Dear Parents/Guardians,

Congratulations on the completion of your child's 7th grade year! As your child prepares for the middle school experience, it is important that he/she maintains the skills necessary to be successful. The mathematics teachers have prepared a summer packet for the students to complete. This will enhance and strengthen their skills.

This packet will be checked on the first day of school and counted as a homework grade. Please complete the packet in its entirety. Please do not leave any questions blank. All work should be shown for every question.

The packet is located on the Pond Road Middle School website.
Please print out the document according to which class your child will be taking in grade 8: **Math 8**, **Algebra Part 1, Algebra I, Accelerated Algebra I,** or **Algebra II**.

Some example problems have been provided for reinforcement as well as help in completing this summer packet. Please click on the link for additional help or you may visit the following websites.

www.aaamath.com
www.coolmath.com
www.funbrain.com
www.kidsnumbers.com
www.mathleague.com
www.khanacademy.org
www.mathplayground.com

Enjoy your summer break and we look forward to seeing you again in September!

Rising 8th Grade Summer Packet

For students entering Algebra I or Accelerated Algebra I

PLEASE WRITE ALL ANSWERS ON THE LINES AT THE RIGHT.

SHOW ALL WORK FOR EVERY PROBLEM.

USAGE OF A CALCULATOR IS NOT ALLOWED UNTIL PART 5.

PART 1 – ORDER OF OPERATIONS

Simplify. WATCH YOUR SIGNS!!!   (Example: https://goo.gl/qO2VUK**)**

1) $8 - 3 + 9 - 2$

2) $(-9)(-2)(3)$

3) $-30 \div -5$

4) $|4 - 13|$

5) $(-5)^2$

6) -3^2

7) -2^5

8) $(-7)^3$

9) $12 - 6 \div 2 \cdot 3$

10) $9 - (6 + 4^2)$

11) $14 + |-2 - 5|$

12) $15 - 3 + 2 - |-7|$

13) $20 - \sqrt{100} + 2(5 - 12)$

14) $\dfrac{5 - (2 - 5)^2}{4 + 24 \div 6(3)}$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

PART 2 – RATIONAL NUMBERS

15) What is the difference between integers and rational numbers?

16) What is an irrational number?

17) Using the following data set, state the numbers that are rational, but not integers.

$$\{-7, \ 4\tfrac{1}{3}, \ 0.75, \ 9\sqrt{2}, \ \tfrac{30}{6}, \ -13, \ \sqrt{121}\}$$

18) Which number set(s) does $-\sqrt{25}$ belong to? Circle all that apply.

Real   Natural   Rational   Whole   Integer   Irrational

Compare using <, >, or =.   Show work to justify your answer.

19) $\dfrac{3}{7}$ _____ 0.43

20) -3.54 _____ $-3\dfrac{5}{9}$

Simplify. WATCH YOUR SIGNS!!!

21) $3.87 + 1.2 + 9.05$

22) $23.34 - 8.95$

21. _____

22. _____

23) $(1.42)(-7.2)$

24) $2814 \div 0.14$

23. _____

24. _____

Simplify. Write your answers as proper or improper fractions. NO MIXED NUMBERS!

(Example: http://www.showme.com/sh/?h=NCF0t3w)

25) $-2\dfrac{2}{5} - 3\dfrac{4}{9}$

26) $27\dfrac{3}{4} + 11\dfrac{3}{7}$

25. _____

26. _____

27) $-14\dfrac{8}{9} + 5\dfrac{1}{2}$

28) $23\dfrac{1}{4} - 7\dfrac{4}{5}$

27. _____

28. _____

29) $-18 + 6\dfrac{4}{11}$

30) $5\dfrac{3}{5} \cdot -3\dfrac{4}{7}$

29. _____

30. _____

31) $\dfrac{32}{48} \cdot \dfrac{60}{64}$

32) $-5 \cdot 1\dfrac{1}{7}$

31. _____

32. _____

33) $5\dfrac{5}{8} \div 5$

34) $-8\dfrac{1}{3} \div -4\dfrac{4}{5}$

33. _____

34. _____

PART 3 – EXPRESSIONS AND EQUATIONS

Translate the following expressions and equations.

35) Eight more than triple a number

36) The quotient of twelve and a number is five.

37) Seven times the sum of a number and two

38) Forty is the product of a number and nine.

35. _____

36. _____

37. _____

38. _____

Evaluate the following if: $w = 3$, $x = -5$, $y = -2$ and $n = 7$

(Example: http://www.showme.com/sh/?h=w3kFme8**)**

39) $wx - yn$

40) $9w - x$

39. _____

40. _____

41) $x^2 - 4y$

42) $\dfrac{wxy + ny}{-2xy}$

41. _____

42. _____

Simplify the following expressions

43) $8x - 9 + 2x + 3 - 14x$

44) $4n^2 - 2n + 2n^2 + 7n$

43. _____

44. _____

45) $5(2x - 3) + 6$

46) $-3(7x - 4) + 2(6x - 5)$

45. _____

46. _____

47) Show how you would check to see if **7** is a solution to the given equation.
  DO NOT SOLVE THE EQUATION!!!

$11(2x - 3) = 3x + 42 + 8x$

Solve the following equations. Show all work.

(Example: http://www.showme.com/sh/?h=ujv9Ck4**)**

48) $5x + 9 = 44$

49) $-50 = -3x - 14$

48. _____

49. _____

50) $7 + \dfrac{3}{5}x = 4$

51) $-5 + \dfrac{x}{4} = 11$

50. _____

51. _____

52) $3 + 4(2x + 5) = 39$

53) $2 = 2x - 6x + 3x + 9$

52. _____

53. _____

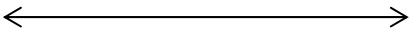
Write and solve an equation for the following.

54) Baseballs cost $4 each. If you buy some baseballs and a $60 bat
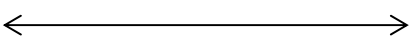   and spend $124, how many baseballs did you buy?

54. _____

PART 4 – INEQUALITIES

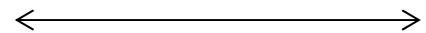**Graph the following inequalities on the number line**

55) $x < -5$ 55. $\longleftarrow \qquad\qquad\qquad \longrightarrow$

56) $2 \geq x$ 56. $\longleftarrow \qquad\qquad\qquad \longrightarrow$

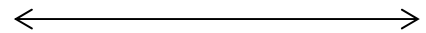**Write an inequality for the following scenarios. Graph on the number line.**

57) The oldest tree in the forest is 120 years old.
    Write an inequality for the age, a, of all the trees in the forest.   57. _____

$\longleftarrow \qquad\qquad\qquad \longrightarrow$

58) The smallest species of frog is 7.7 millimeters long.
    Write an inequality for the height, h, of all the other frog species.   58. _____

$\longleftarrow \qquad\qquad\qquad \longrightarrow$

Solve the following inequalities. Show all work. (Example: https://goo.gl/gLwqE0)

59) $4 + 2x \leq -20$ 60) $-7x + 7 > 21$ 59. _____

60. _____

61) $4 + \dfrac{x}{3} \leq 20$ 62) $21 < 9 - \dfrac{3}{4}x$ 61. _____

62. _____

PART 5 – RATES/RATIOS/PROPORTIONS

Find the unit rate

63) work for 12 hours and earn $140   63. _____

64) travel 900 miles in 15 hours   64. _____

Solve the following proportions. Round answer to the nearest tenth.

65) $\dfrac{3}{7} = \dfrac{11}{x}$ 66) $\dfrac{8y}{3} = \dfrac{191}{20}$ 65. _____

66. _____

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67) If Susan can read 40 pages in 12 minutes, how many pages
     can she read in 50 minutes?

67. _____

68) The key on a map says 2 inches equals 7 miles. If two cities are
     9 inches apart on the map, how far apart are they in real life?

68. _____

PART 6 – PERCENTS

Convert to a decimal.

69) $\dfrac{7}{20}$

70) 31%

71) $\dfrac{4}{9}$

69. _____

70. _____

71. _____

Convert to a fraction.

72) 3.25

73) 8%

74) 0.125

72. _____

73. _____

74. _____

Convert to a percent.

75) 0.84

76) $\dfrac{2}{3}$

77) 6.12

75. _____

76. _____

77. _____

Estimate using fractions (not proportions)

78) 34% of 15

79) 74% of 81

78. _____

79. _____

80) 56 is what percent of 80?

81) 19 is 20% of what number

80. _____

81. _____

Solve the following problems using any method.

82) 30 students in grade 8 finished their summer packet before August 15.
     This was 12% of all the students. How many students are in grade 8?

82. _____

83) There are 1,200 people at the beach.   If 88% of them went in the water,
     how many people **DID NOT** go in the water?

83. _____

84) A $800 T.V. is on sale for 15% off. What is the cost of the T.V.?

84. _____

85) You go out to dinner and the bill is $45.12.   You want to leave
     an 18% tip. How much money should you leave?

85. _____