Brunswick High School

Honors Algebra 1

Summer Packet

(This packet is for students entering Honors Algebra 1)

All of this information will be used at some point in the upcoming year. These topics should have been covered in previous years (not necessarily last year). You are responsible for all of this material. You are expected to bring this completed packet with you to class on the first day of school.

Your work must be done neatly and in order on notebook paper. Be sure to number each problem and show the steps taken to solve each problem. You must put your answers on a separate sheet of paper. You should staple your notebook paper to the answer sheets but do not turn in the problem packet.

Remember: this is the first test grade you will receive for Algebra 1 Honors.

Again, do your work on a separate page, record answers on the answer sheet. Attach all work to the answer sheet but do not turn in the question packet. DO NOT DO WORK ON QUESTION PACKET!!

**YOU MUST SHOW WORK OR WRITE AN EXPLANATION FOR EVERY PROBLEM!!!!** Problems without work or an explanation will receive no credit regardless of answer. Answers not recorded on the answer sheet will not receive credit.

If you have questions during the summer, please email me. Email will be checked periodically, and questions will be addressed.

Shonta Butts – Department Chair/Teacher  

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Name: ____________________________________________________

Name of Middle School: ___________________________________
Simplify. Write as an improper fraction. Show all work for credit.

1. \[ \frac{11}{5} + \frac{7}{3} = \]
2. \[ \frac{8}{7} - \frac{1}{9} = \]
3. \[ 5 - \frac{9}{4} = \]
4. \[ \frac{6}{12} + \frac{7}{8} = \]
5. \[ \frac{4}{5} - \frac{15}{16} = \]
6. \[ 6 - \frac{4}{9} = \]
7. \[ 12 ÷ \frac{1}{4} = \]
8. \[ \frac{9}{8} ÷ \frac{3}{8} = \]

9. Maria ate \( \frac{2}{3} \) of a pizza that had 12 pieces. How many pieces did Maria eat?

10. George rode his bike \( 1\frac{3}{4} \) of a mile to the store. He then rode his bike \( 2 \frac{1}{2} \) miles to his friend’s house. How far did he ride altogether?

11. Steve walked \( 3 \frac{3}{4} \) miles on Tuesday and \( 4 \frac{2}{3} \) miles on Thursday. How many more miles did he walk on Thursday than Tuesday?

Find the missing number.

12. \[ \frac{10}{15} = \frac{x}{60} \]
13. \[ \frac{4}{15} = \frac{20}{x} \]

14. 12 out of 13 boys in a group like hamburgers. If the number of boys in the group increased to 65, how many would you expect to like hamburgers?
15. 4 out of 5 doctors recommend at least 30 minutes of exercise a day. A total of 80 doctors recommend 30 minutes of exercise a day. How many doctors did they interview altogether?

\[ w + \frac{1}{5} = \frac{7}{8} \]

\[ h + \frac{3}{8} = -\frac{1}{4} \]

\[ 15 + \frac{3}{4} = t + 4 + \frac{5}{8} \]

\[ 6a = \frac{5}{7} \]

\[ \frac{3}{7} h = 9 \]

\[ \frac{2}{7} a = \frac{8}{5} \]

\[ -\frac{1}{3} p = \frac{3}{5} \]

28. Mr. Smith needs a shelf to hold a set of textbooks, each 1 ¼ in. wide. How many books will fit on a 35 in. long shelf?

29. You have a 90 lb. calf you are raising for a 4-H project. You expect the calf to gain 65 lbs. per month. In how many months will the animal weigh 1000 lbs.?
30. A student works at a job which pays $6 per hour. This week the student also received a bonus of $50. If the total pay for the week was $284, how many hours did the student work?

40. An airplane descends at a velocity of -14 in/sec. Find the vertical distance traveled in 7.5 seconds?

**Solve the equation.**

41. \(2x - 26 = 10\)

42. \(-6 + 3x = -9\)

43. \(\frac{x}{5} + 9 = 4\)

44. \(-3x + 6 = -9\)

45. \(x + 7 = 6x - 3\)

46. \(x - 9 = -6x + 5\)

47. \(-6p - 21 = 3p - 12\)

48. \(\frac{1}{4}y - 3 = 9\)

39. Angus Burgers had the following profits and losses over a 3-month period were: July: -$3,515; August: -$5,674, September $8993. What was the companies’ overall profit or loss?

49. Four friends dining in a restaurant decide to split the bill evenly between them. Each person will pay $9.45. How much is the total bill?
50. A family is going to Disneyland, the family pack of tickets costs $348.00 for a total of four people. If each person can go for 3 days, how much does it cost each person per day to go?

51. A rental store will rent a lawn mower for $6 per hour with a $10 rental fee, or it can be rented for $46 per day, with no rental fee. Under what circumstance would it be better to rent per hour?

52. $3^3$

53. $(-6)^2$

54. $1^4$

55. $2^5$

56. The floor of a room is 14 feet long by 14 feet wide. How many square feet of a carpet are needed to cover the floor?

57. $x - 4$, when $x = -1$

58. $-x + 6$, when $x = 9$

59. $x^2 + 3$, when $x = 5$

60. $-x^2 - 1$, when $x = 4$

61. $-x^2 + x$, when $x = -2$

62. $\frac{x - 5}{x}$, when $x = 10$

63. $\sqrt{x} + 2\sqrt{y} + 3\sqrt{xy}$, when $x = 4$, $y = 9$

64. $2\left[ x + x(3y - x) \right]$, when $x = 3$, $y = 2$

65. Find the perimeter of the triangle when $x = 3$
66. \(3x^2 + (2y + z^3)\), when \(x = 4, y = 5, z = 3\)

Simplify each expression using the order of operations.

67. \(\frac{2a-b^2}{ab} + \frac{c-a}{b^3}\), when \(a = 8, b = 4, c = 16\)

78. \(4(x - 2)\)

79. \(3(x + 5)\)

80. \(-(x - 7)\)

81. \(-5(2x + 3)\)

Simplify by combining like terms.

82. \(2x + 4x - 3x\)

83. \(-x + 2 + 8x\)

84. \(-3(x - 8) - 4x\)

Graph the points and connect to create a line.

85. | x | y  |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
</tbody>
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86. \[
\begin{array}{cc}
\text{x} & \text{y} \\
-3 & -3 \\
0 & -4 \\
3 & -5 \\
\end{array}
\]

Find the slope.

Graph the equation using a table of values.

87. \( y = 3x + 2 \)

\[
\begin{array}{cc}
\text{x} & \text{y} \\
\end{array}
\]

Find the area and perimeter of the following shapes.

91. Rectangle

92. Square
93. Isosceles Triangle

94. Trapezoid

95. Circle