

*Algebra 2 Summer Packet*

Name: \_\_\_\_\_

This packet is due on the first full day of class for Algebra 2. One week later, **you will be given a test on the material** found in this packet. You will have that one week to ask questions and get understanding of any topic in this packet for the teacher, the tutorial center and your peers.

**REQUIRED MATERIALS FOR Algebra 2:**

- **3-ring binder with at least 4 dividers USED ONLY FOR Algebra 2**
- **Lined loose leaf paper**
- **Graph paper**
- **Graphing Calculator (specifically TI-83, TI-84 or TI-84+)**
- **Colored Pencils (recommended)**

Evaluate

1.  $15 \div 3 \cdot 5 + 1$

3.  $[7 - (8 - 6)^2] - 1$

2.  $5 \cdot 7 - 2(5 + 1) \div 3$

Evaluate each expression if  $a = -0.5$ ,  $b = 4$ ,  $c = 5$ , and  $d = -3$ .

4.  $d(b + d)^3$

5.  $k \frac{5a - ad}{bc}$

Find the value of each expression. Then name the sets of numbers to which each value belongs. (Use N, W, Z, Q, I, and R.)

6.  $4.1 + 8.2$

8.  $81\sqrt{-4}$

7.  $\sqrt{36} - 3$

Name the property illustrated by each equation.

9.  $(4 + 9a) 2b = 2b(4 + 9a)$

12.  $(j + k) + 0 = (j + k)$

10.  $3\left(\frac{1}{3}\right) = 1$

13.  $(2a)b = 2(ab)$

11.  $a(3 - 2) = a \cdot 3 - a \cdot 2$

Name the additive inverse and the multiplicative inverse of each number.

14.  $\frac{-1}{8}$

Simplify each expression.

15.  $\frac{4}{5}(3v - 2w) - \frac{1}{5}(7v - w)$



A function  $g$  includes the ordered pairs (1, 2), (2, 4), (3, 6), and (4, 8). State whether  $g$  will still be a function if each ordered pair given below is also included in  $g$ . Write *yes* or *no*.

43. (1, 3)

Find each value if  $f(x) = \frac{1}{2}(x + 7)$  and  $g(x) = (x + 1)^2 - \frac{2}{x}$

44.  $g(-2)$

45.  $f\left(\frac{1}{2}\right)$

46.  $f(b - 1)$

State whether each equation is linear. Write *yes* or *no*.

47.  $\frac{x}{2} - y = 7$

49.  $g(x) = 2 \div (x-3)$

50.  $f(x) = 7$

48.  $x(y + 5) = 0$

Write each equation in standard form where  $A$ ,  $B$ , and  $C$  are integers whose greatest common factor is 1. Identify  $A$ ,  $B$ , and  $C$ .

51.  $y = \frac{2}{3}x + 8$

Find the  $x$ -intercept and the  $y$ -intercept of the graph of each equation.

52.  $0.05x + 0.02y = 4$

54.  $x = 7$

53.  $x = 3y$

Graph each equation.

55.  $y = x - 4$

57.  $\frac{x}{2} - \frac{y}{5} = \frac{1}{3}$

56.  $5x = 20$

Find the slope of the line that passes through each pair of points. Then determine whether the line rises to the right, falls to the right, is horizontal or vertical.

58. (2, 3), (5, 7)

Find the slope of the graph of each equation.

59.  $2x + y = 8$

60.  $y = 7$

Determine the value of  $a$  so that a line through the points with the given coordinates has the given slope.

61. (5, 0) (a, 9); slope = 3

State the slope and y-intercept of the graph of each equation.

62.  $-y = 6x + 4$

63.  $6y + 42 = 5x$

Write an equation in slope-intercept form that satisfies each condition.

64. passes through (5, 3) and (-5, -3)

65. x-intercept = 2, y-intercept = 7

66. passes through (0, 5), perpendicular to the line that passes through (7, 8) and (2, 4)

Identify each function as C for constant, D for direct variation, A for absolute value. Then graph each function.

67.  $f(x) = \frac{17}{4}$

69.  $g(x) = \frac{x}{2}$

68.  $f(x) = |x| - 4$

Graph each pair of equations on the same coordinate plane. Discuss the similarities and differences in the two graphs.

70.  $y = |x| - 4$  and  $y = |x - 4|$