Algebra 2 Summer Assignment

This packet includes material your teacher expects you to know when you begin the course. It is designed to be done over the course of the summer to provide practice and highlight the concepts you learned in your previous math course.

Instructions:

- Complete the packet on loose leaf paper.
- Write your name and the course on the top of every sheet you use.
- Number your work, and do the problems in order.
- Copy each problem before showing your work.
- Check your answers as you go (answers are included at the end of the packet).

The completed assignment is due on the first day of class and is worth *25 points* for all math courses. YOU will take a *50 point* Quiz on the 3rd day of class.

Order of Operations: Simplify each expression. DO NOT USE A CALCULATOR!

1. $(6-5)^3+14\div(2+5)$
2. $7+5-(8+2)-(-6)$
3. $\left[2-5(4+6)\right]\div(-6)$
4. $-(4)\left(\frac{1}{6}\right)(-3)$
5. $(-3)^2-(4)(-1)$
6. $\frac{-4-5}{7+(-2)^2}$
7. $\frac{-12+2(6)}{4-(-3)}$
8. $\frac{-9(9-3)}{2^4-7}$

Simplifying Expressions: Simplify each expression completely.

9. $3t+5t^2-2t+6t^2$
10. $-(y-2)+2-y$
11. $2n(n-8)-5n^2+21n-7$
12. $\frac{1}{2}(6x+4)-\frac{1}{4}(8x-8)$

Evaluate Expressions: Evaluate each expression for the given values.

13. $ac+bc$ for $a=-2, b=3, c=-1$
14. $\frac{3x+y-1}{2x-y}$ for $x=3, y=4$
15. $(c-b)(c+b)$ for $c=-1, b=3$
16. $a^2+2ab+b^2$ for $a=-2, b=3$

Solving Equations: Solve each equation.

17. $6x-5=2x-21$
18. $7b+5b+20=2b-20$
19. $4x-12=-12+4x$
20. $16h-4(5h-7)=4$
21. $6(2a+10)=5(a+5)$
22. $\frac{2}{3}x-7=5$
23. $\frac{1}{5}(10x-15)=3-2x$
24. $-2.5x+2=0.5(8-6x)$

Rewriting Equations: Solve for the indicated variable.

25. $A=\frac{1}{2}bh$; solve for b

26. $V=lwh$; solve for w

27. $5y+2x=15$; solve for y

28. $4x-3y=21$; solve for y

Slope:

Sketch a line with...

29. Positive slope

30. Negative slope

31. Zero slope

32. Undefined slope

Find the slope of the line given two points.

33. $(4,1)\ (2,7)$

34. $(2,3)\ (4,3)$

35. $(0,4)\ (-2,8)$

36. $(6,-8)\ (6,4)$

37. Perpendicular lines have _____ slopes.

38. Parallel lines have _____ slopes.

Graphing Linear Functions: ***(All graphs for #39-43 are to be done on graph paper.)***

On graph paper, draw the line given using slope and y-intercept.

39. $y=\frac{3}{2}x-4$

40. $x=5$

41. $y=-2$

42. $y=-2x+3$

On graph paper, draw the line by finding and graphing x and y intercepts.

43. $5x-3y=15$

Writing Equations of Lines: (Write all final answers in slope-intercept form)

Write the equation of the line that has the given slope and given y-intercept.

44. slope = 2, y-intercept = -3

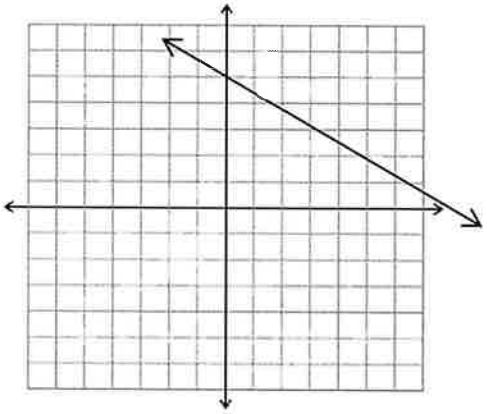
45. slope = -5, y-intercept = 12

46. slope = $\frac{1}{2}$, y-intercept = 9

47. slope = -4, y-intercept = -6

Write the equation of the line that corresponds to the line graphed.

48.



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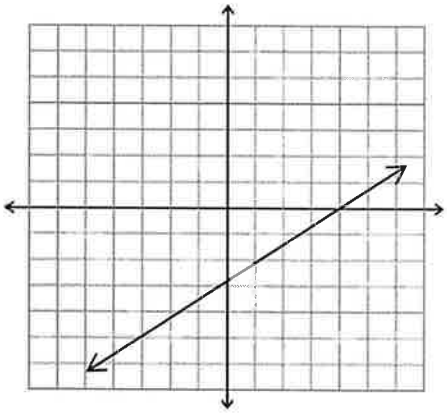


Remember: If the y-intercept is not given, you MUST use point-slope form. $y-y_1=m(x-x_1)$

Write the equation of the line with the given slope through the given point.

50. slope $=2$, point $(5,2)$

51. slope $=\frac{1}{2}$, point $(2,-4)$

Write the equation of each line.

52. Line through $(5,-2)$ and parallel to $y=-\frac{1}{2}x+5$

53. Line through $(-3,-8)$ and perpendicular to $y=-4x+2$

Write the equation of the line that passes through the given pair of points.

54. $(0,-3)$ and $(6,-2)$

55. $(-3,-1)$ and $(5,-8)$

Systems of Equations: Solve the system of linear equations by the given method. Identify your answer as an ordered pair.

56. Use ELIMINATION to solve: $\begin{cases}3x+2y=-5\\4x-3y=16\end{cases}$

57. Use SUBSTITUTION to solve: $\begin{cases} 5x-y=13 \\ x-4y=-5 \end{cases}$

58. Use GRAPHING to solve: $\begin{cases} x+y=1 \\ 3x-y=-5 \end{cases}$ ***(Graph must be done on graph paper.)***

Multiplying Polynomials: Find the product and simplify completely.

59. $(5x+1)(3x-2)$
60. $(-4x)(2x^2+5x-3)$
61. $(c-7)^2$
62. $(3x-2)(3x+2)$

Factoring: Factor the following expressions completely.

63. $b^2-14b+45$
64. $x^2+6x-27$
65. $4x^2+12x+9$
66. $5x^2+3x-8$
67. $3n^2-16n+5$
68. $4x^2-28x+48$
69. $2a^2-24a$
70. $5p^2-80$

Properties of Exponents: Simplify each expression completely. Express all answers with positive exponents.

71. $(2x)^{-3}$
72. $(-5)^0$
73. $(2x^2y^3)(3xy^2)$
74. $(-4x^{-3}y^5)^3$

Simplifying Radicals: Simplify each expression completely.

75. $3\sqrt{48}$
76. $\sqrt{98x^2y^5}$
77. $\sqrt{8x}\cdot\sqrt{10x}$
78. $\sqrt{\frac{100}{3}}$

Solving Quadratic Equations: Solve using any method.

79. $x^2 - 3x - 28 = 0$

80. $5x^2 - 35x = 0$

81. $x^2 + 12x + 40 = 4$

82. $x^2 - 121 = 0$

83. $x^2 + 14x + 10 = 2$

84. $3x^2 + 7x - 20 = 0$

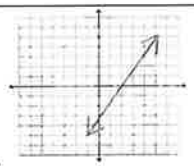
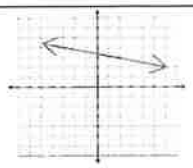
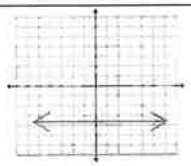
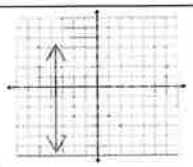
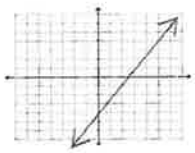
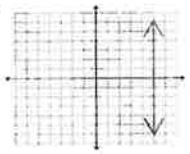
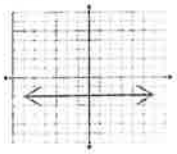
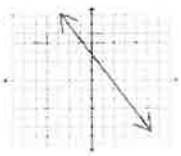
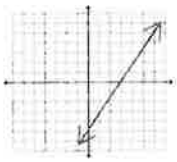
85. $x^2 + 64 = 0$

86. $x^2 - 9x - 12 = 3$

87. $2x^2 + x - 13 = 0$

88. $x^2 + 6x + 9 = 8$

Algebra 2 Summer Review Packet – Answers

1. 3	2. 8	3. 8	4. 2
5. 13	6. $-\frac{9}{11}$	7. 0	8. -6
9. $11t^2+t$	10. $-2y+4$	11. $-3n^2+5n-7$	12. $x+4$
13. -1	14. 6	15. -8	16. 1
17. $x=-4$	18. $b=-4$	19. all □	20. $h=6$
21. $a=-5$	22. $x=18$	23. $x=\frac{3}{2}$	24. $x=4$
25. $b=\frac{2A}{h}$	26. $w=\frac{V}{lh}$	27. $y=-\frac{2}{5}x+3$	28. $y=\frac{4}{3}x-7$
29. 	30. 	31. 	32. 
33. $m=-3$	34. $m=0$	35. $m=-2$	36. undefined
37. opposite reciprocal	38. same	39. 	40. 
41. 	42. 	43. 	44. $y=2x-3$
45. $y=-5x+12$	46. $y=\frac{1}{2}x+9$	47. $y=-4x-6$	48. $y=-\frac{2}{3}x+5$
49. c	50. $y=2x-8$	51. $y=\frac{1}{2}x-5$	52. $y=-\frac{1}{2}x+\frac{1}{2}$
53. $y=\frac{1}{4}x-\frac{29}{4}$	54. $y=\frac{1}{6}x-3$	55. $y=-\frac{7}{8}x-\frac{29}{8}$	56. $(1,-4)$
57. $(3,2)$	58. $(-1,2)$	59. $15x^2-7x-2$	60. $-8x^3-20x^2+12x$
61. $c^2-14c+49$	62. $9x^2-4$	63. $(b-9)(b-5)$	64. $(x+9)(x-3)$
65. $(2x+3)^2$	66. $(5x+8)(x-1)$	67. $(3n-1)(n-5)$	68. $4(x-4)(x-3)$
69. $2a(a-12)$	70. $5(p+4)(p-4)$	71. $\frac{1}{8x^3}$	72. 1
73. $6x^3y^5$		74. $-\frac{64y^{15}}{x^9}$	

75. $12\sqrt{3}$	76. $7xy^2\sqrt{2y}$	77. $4x\sqrt{5}$	78. $\frac{10\sqrt{3}}{3}$
79. $x=\{-4,7\}$	80. $x=\{0,7\}$	81. $x=\{-6\}$	82. $x=\{\pm 11\}$
83. $x=\{-7\pm\sqrt{41}\}$	84. $x=\{-4,\frac{5}{3}\}$	85. $x=\{\pm 8i\}$	86. $x=\{\frac{9\pm\sqrt{141}}{2}\}$
87. $x=\{\frac{-1\pm\sqrt{105}}{4}\}$	88. $x=\{-3\pm 2\sqrt{2}\}$		