

## Summer Review Packet – Pre AP Algebra 2

**Directions for this packet:** On a separate sheet of paper, show your work for each problem in this packet, and circle your answer. This is not an option!

While you will most likely be able to solve, simplify, or graph many of these on your own, others may require assistance from outside sources. You are strongly encouraged to:

- Search the internet. Google the topic of the directions, and you will likely find some great tutorials on what you need to do;
- Work with others (form a study group!); or
- Find other resources (other textbooks, etc.) to solve these problems. It might be possible for you to come to school and check out an Algebra I textbook to refresh your memory.

If a calculator has been issued to you this year, please take this calculator for the summer so that it will be available for your use in completing your summer review. Make sure that Mrs. Lee knows that you are keeping your calculator.

You are expected to finish as much of this as possible this summer. We will spend **ONLY** the first week of school (at the most) going over any questions you may have. During this same week, you will take three quizzes (these will count as daily grades) over this work, and completion of the packet itself will also be worth two daily grades.

GOOD LUCK!

## ***ARE YOU READY FOR PRE-AP ALGEBRA II?***

1-10 Evaluate the expression:

1.  $2a + 3$ , when  $a = 7$
2.  $4x - 3y + 2$ , when  $x = 3$  and  $y = 4$
3.  $4x - 3y + 2$ , when  $x = 4$  &  $y = 3$
4.  $15p(4 - p)$ , when  $p = 2$
5.  $3m - (m + 5)$ , when  $m = 20$
6.  $(3x + 1) \div y$ , when  $x = 7$  and  $y = 11$
7.  $(2x)^2 - 3$ , when  $x = 4$
8.  $3b^3 + 4$ , when  $b = 2$
9.  $x^2 + y^2$ , when  $x = \frac{1}{2}$  and  $y = 2$
10.  $9(m - n)^3 + 5$ , when  $m = 4$  &  $n = 1$

11-25 Solve the equation for  $x$ :

11.  $-\frac{x}{3} = 2$
12.  $-19 = x + 5$
13.  $9 - x = 5$
14.  $4 + 6x = 12$
15.  $\frac{1}{2}x - 5 = 1$
16.  $3(5 - x) = -4(x - 4)$
17.  $4x - 2x = 15 - 3x$
18.  $3x + 9 = 2(x - 5)$
19.  $-4(x - 2) + 3(x + 1) = 7$
20.  $15(4 - x) = 5(10 + 2x)$
21.  $-3(x - 2) = 6(4x + 1)$
22.  $-2x = 2(x + 1) + 3$
23.  $6x = \frac{2}{3}(5x - 2)$
24.  $2(4x) - (x - 1) = 2(1 - x)$
25.  $15(x - 2) = -13(1 + x) + 11$

26-34 Solve for the indicated variable:

26. Solve for  $r$ :  $A = 2\pi rh$
27. Solve for  $w$ :  $V = lwh$
28. Solve for  $r$ :  $S = L - rL$
29. Solve for  $t$ :  $A = P + Prt$

30. Solve for  $b$ :  $\frac{b}{h} = \frac{3}{4}$

31. Solve for  $h$ :  $V = \frac{\pi}{3}r^2h$

32. Solve for  $x$ :  $p = 12 - \frac{x}{1000}$

33. Solve for  $h$ :  $V = \frac{1}{3}b^2h$

34. The cost is  $C = 5000 + 0.56x$  where  $x$  is the number of items produced. Solve the equation for  $x$ . Then evaluate  $x$  when  $C = 8360$ .

35-39 Solve the inequality. Then sketch its graph. (HINT: Think number lines!)

35.  $5x - 2 < \frac{1}{2}$

36.  $3x + 4 \geq -2$

37.  $3 - 4x \leq 1$

38.  $-2x - 1 > 5$

39.  $-x - 1 < -1$

40-54 Sketch the graph of the equation. (Be precise! Graph paper provided..)

40.  $y = 2x + 1$

41.  $y = x + 5$

42.  $y = x + 1$

43.  $y = 2x - 1$

44.  $y = 2$

45.  $y = -x + 2$

46.  $y = -x$

47.  $x = 5$

48.  $y = -1$

49.  $y = x$

50.  $y = -3x + 3$

51.  $x = -2$

52.  $y = 5x + 3$

53.  $y = x + 6$

54.  $y = -x - 1$

55-62 Find the slope of the line containing the two points:

55. (1, 1), (3, 4)

56. (-1, 2), (2, 5)

57. (2, 4), (0, 5)

58. (3, -2), (3, 1)

59.  $(-3, -1), (-1, 1)$

60.  $(2, 0), (0, 2)$

61.  $(-4, -1), (1, -1)$

62.  $(2, 1), (\frac{1}{2}, -2)$

63-64 Decide whether the lines are parallel, perpendicular, or neither:

63. Line 1 contains  $(-2, 6)$  and  $(2, 7)$ . Line 2 contains  $(4, -1)$  and  $(5, -5)$ .

64. Line 1 contains  $(1, 2)$  and  $(5, -1)$ . Line 2 contains  $(-2, -2)$  and  $(2, -1)$ .

65-67 Sketch the line. (Be precise!) Label the coordinates of the  $x$ -intercept and  $y$ -intercept. Then, find both intercepts algebraically to verify the accuracy of the graphs:

65.  $2x - y = 10$

66.  $2x + 3y = 12$

67.  $-3x + 4y = -2$

68-70 Sketch the line using the slope and  $y$ -intercept:

68.  $3x + 4y = 4$

69.  $3x - y = 2$

70.  $-3x + 2y = -6$

71-76 Write an equation of the line containing the given point with the given slope:

71.  $(0, \frac{2}{3}), m = 4$

72.  $(5, 3), m = \frac{1}{2}$

73.  $(1, 0), m = -1$

74.  $(2, -1), m = \frac{2}{3}$

75.  $(-2, 0), m = -\frac{1}{3}$

76.  $(0, -2), m = -\frac{1}{4}$

77-79 Write an equation for the line containing the two points:

77.  $(-6, -1), (3, 2)$

78.  $(-4, 3), (0, -5)$

79.  $(-3, 3), (3, -6)$

80-81 Write an equation for the line of best fit:

80. Approximate the best-fitting line for the data in the table:

$x$	-1	-0.5	0.5	1	1.5	2	3	3.5	4	4.2
$y$	8	8	7	5.5	10	3	3	0.5	0	-2

81. The data in the table shows the age,  $t$  (in years), and the corresponding height,  $h$  (in inches), for a young man from the age of 2 to the age of 19. Approximate the best-fitting line for this data.

<b>Age (<math>t</math>)</b>	2	3	6	8	10	12	14	15	17	18	19
<b>Height (<math>h</math>)</b>	28	33	40	46	52	55	61	64	70	72	72

82-91 Perform the indicated operation:

82.  $(7x^3 + x^2 - 2x + 1) - (16x^2 - 7)$       83.  $(5x^2 - 6x - 1) + (4x^2 - 2x + 1)$

84.  $3x(x^2 - 2x - 1)$       85.  $-2x(1 - x - x^2)$

86.  $(2x - 5)(x + 2)$       87.  $(3 - 2x)^2$

88.  $(x + 3)(x^2 - 2x - 1)$       89.  $(x - 2)(x^2 + 2x + 4)$

90.  $(x - 5)(x + 5)$       91.  $(2x - 1)^3$

92-105 Factor completely:

92.  $2x^2 - 128$       93.  $a^2 + 25 - 10a$

94.  $2x^2 - 11x + 12$       95.  $x^3 + 24x^2 + 144x$

96.  $8y^2 - 18y - 5$       97.  $24x^2 - 54$

98.  $20x^3 - 4x^2 - 72x$       99.  $x^2 + 4$

100.  $9x^3 + 12x^2 - 45x$       101.  $x^5 - 14x^4 + 49x^3$

102.  $x^2 + 3x + 1$

103.  $4x^4 - 64$

104.  $1 - y^8$

105.  $x^5 - 4x^4 + 3x^3$

106-114 Solve using the quadratic formula:

106.  $x^2 - 4x = 21$

107.  $x^2 = 6x - 9$

108.  $3y^2 - 2y - 8 = 0$

109.  $4x^2 + 12x = 7$

110.  $x^2 - 9 = 0$

111.  $x^2 - 2x + 1 = 0$

112.  $y^2 - 10y + 22 = 0$

113.  $x^2 + 4x + 4 = 7$

114.  $3x^2 + 5x = 0$