

Honors Algebra II Summer Assignment

Dear student,

Welcome to Honors Algebra II! You have signed up for a rigorous course that will challenge your minds to think harder and dig a little deeper. In preparation for the fall, this summer assignment needs to be completed and even more importantly. The concepts presented in this packet need to be understood when you come in the first day of class. Below are some directions explaining how to complete the assignment, the due date of the assignment, and how the assignment will be graded. We are not trying to scare you, just prepare you for the course you chose to take. Good luck with the assignment and enjoy your summer. We look forward to meeting you in the fall.

Sincerely,
Honors Algebra II Team
June, 2010

Directions:

- Be sure to pay attention to the directions at the start of each section. DO NOT just begin solving.
- Where it is noted to SHOW ALL WORK we mean it.
NO WORK = ABSOLUTELY NO CREDIT
- **Packet is due the first day of class, i.e. the first time you see your teacher!!!**
 - Freshman who have Honors Algebra II **DUE AUG. 23rd**
 - Non-freshman who have Honors Algebra II
 - **DUE AUG. 24TH / 25th depending on which day you have it.**
- **LATE PAPERS WILL NOT BE ACCEPTED WITHOUT EXTENUATING CIRCUMSTANCES**
- This will count as a 30 point homework grade, based on completion and accuracy. The accuracy component will not be for the entire packet, but rather selected problems chosen by the teacher.

I. Solving Equations. Solve for x. SHOW ALL WORK!!!!!!

1. $-6x + 13 = -29$

2. $\frac{2}{3}x + 1 = -7$

3. $3.1(x + 2) - 1.5x = 5.2(x - 4)$

4. $6n + 2 = 3n + 26$

5. $2 + 5x = 7x - 16$

6. $\frac{1}{4}x + \frac{1}{2} = \frac{3}{4}x + \frac{1}{3}$

7. $3(x - 4) = 15$

8. $7(x + 2) = 3(x - 2)$

9. $2(x + 6) = -2(x - 4)$

II. Equations of a line. SHOW ALL WORK!!!!!!**Write the equation of a line in the slope-intercept form given the following information:**

10. $m = -\frac{5}{2}$ and $b = -\frac{7}{2}$

11. $(0, 3)$ and $(2, -1)$

12. $(4, 2)$ and $(-2, -4)$

13. $m = -2$ and $(3, 0)$

14.

x	0	1	2	3
y	1	5	9	13

15.

x	2	4	6	8
y	8	6	4	2

16. Write the equation of a line that passes through the point $(-1, -2)$ and is parallel to the graph of $y = -3x - 2$. Write the equation of a line that passes through the point $(-1, -2)$ and is perpendicular to the graph of $y = -3x - 2$.

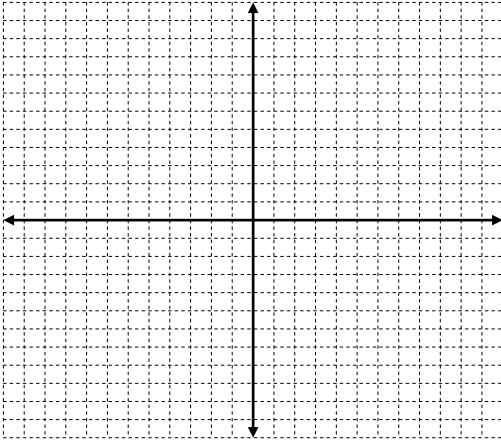
Rewrite the equation in the standard form ($ax + by = c$)

17. $y - 5 = 4(x + 2)$

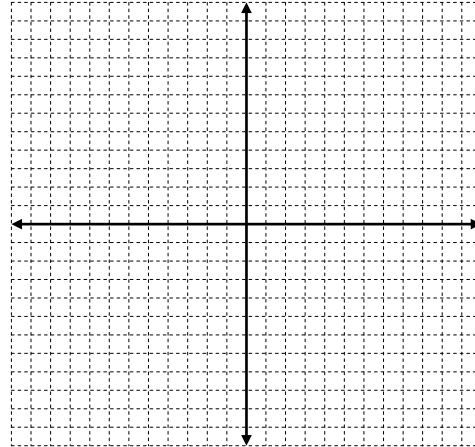
18. $y + 3 = -\frac{3}{4}(x - 1)$

III. Graph the following lines using m (slope) and b (y-intercept). SHOW ALL WORK!!!
(i.e. $m = \underline{\hspace{1cm}}$, $b = \underline{\hspace{1cm}}$)

19. $y = -\frac{1}{3}x + 5$

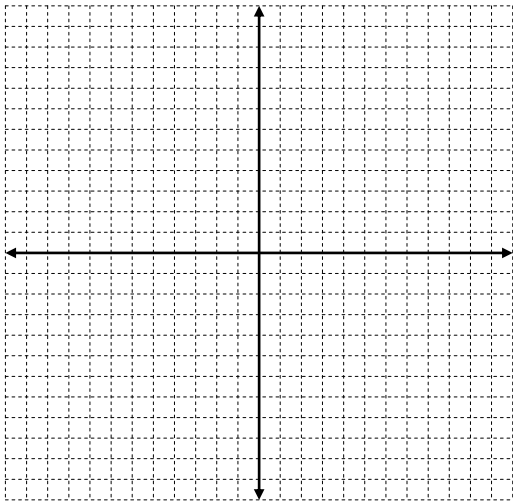


20. $y = 2x - 3$

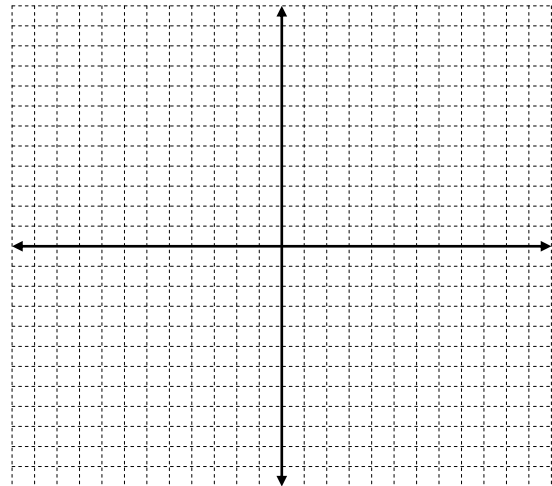


Graph the following lines using the x-intercept and the y-intercept. SHOW ALL WORK!!!!!!

21. $2x + 3y = 6$



22. $2x - 4y = 8$



Find a linear regression model using the calculator.

23. **Space** - Use the table that shows the amount that the United States government has spent on space and other technologies in the selected years. **Use $x = 0$ as 1980.**

Year	1980	1985	1990	1995	1996	1997	1998	1999
Spending (Billions of \$)	4.5	6.6	11.6	12.6	12.7	13.1	12.9	12.4

- Write an equation of the line of best fit (round parts to hundredths).
- Using $x = 0$ as 1980, predict the spending for 2006.
- Explain the meaning of the slope for this situation.
- Give the correlation coefficient and determine how well the model fits the data.

24. **Birds** - The table shows an estimate for the numbers of bald eagle pairs in the United States for certain years since 1985.

Yrs since 1985	3	5	7	9	11	14
Bald Eagle Pairs	2500	3000	3700	4500	5000	5800

- Write an equation of the line of best fit (round parts to hundredths).
- Predict the number of bald eagle pairs in 2006.
- Explain the meaning of the y - intercept for this situation..
- Give the correlation coefficient and determine how well the model fits the data.

V. Systems. Solve each system of equations algebraically. (Use substitution or elimination)

SHOW ALL WORK!!!!!!

$$\begin{aligned} 25. \quad 2x + y &= -4 \\ 5x + 3y &= -6 \end{aligned}$$

$$\begin{aligned} 26. \quad y &= x + 2 \\ y &= 2x + 7 \end{aligned}$$

$$\begin{aligned} 27. \quad y &= 7 - x \\ x - y &= -3 \end{aligned}$$

$$\begin{aligned} 28. \quad x + 2y &= 11 \\ x + 2y &= 14 \end{aligned}$$

Graph each system to solve. (Use calculator) Provide an explanation of how you determine the solution to a system graphically in the box provided.

$$\begin{aligned} 29. \quad 3x + y &= -4 \\ y &= \frac{-8 - 6x}{2} \end{aligned}$$

$$\begin{aligned} 30. \quad 2x + 3y &= 1 \\ 4x - 5y &= 13 \end{aligned}$$

VI. Polynomials. SHOW ALL WORK!!!!!!**Simplify:**

Problem	Answer
31. $4x^2 - 11x + 10 + 5x - 31$	
32. $-3x^3 + x - 11 - 4x^3 + x^2 - x$	
33. $5x^3 - x^2 - x + 3$	
34. $-4x^3 - 8x^2 + 3$	
35. $x^3 - 1 + x^3 + 2x^2 + 2$	
36. $x^3 - 1 + 2x + 1$	

Simplify:

Problem	Answer
37. $(x - 5)^2$	
38. $(2x^2 + 3)^2$	
39. $(4x - 1)^2$	
40. $(x + 3)^2$	

Factor:

Problem	Answer
41. $3x^4 - 12x^3$	
42. $x^3 - 2x^2 - 4x + 8$	
43. $3x^2 - 5x + 2$	
44. $x^2 - 9x + 18$	
45. $25x^2 - 16$	

**VII. Simplify (leave a $\sqrt{\quad}$ in the answer for irrational numbers if necessary-don't estimate).
SHOW ALL WORK!!!!**

46. $\sqrt{100}$ _____

47. $-\sqrt{1}$ _____

48. $\sqrt{75}$ _____

49. $\sqrt{\frac{7}{3}}$ _____

50. $\sqrt{3} - 7\sqrt{3}$ _____

51. $2\sqrt{5} - 3\sqrt{45}$ _____

52. $\sqrt{175} + \sqrt{63} + \sqrt{112}$ _____

53. $\sqrt{5} \cdot \sqrt{3}$ _____

54. $(\sqrt{27})(\sqrt{3})$ _____

55. $(-2\sqrt{8})(4\sqrt{2})$ _____

VIII. Absolute Value Inequalities

Graph on a number line.

56. $-10 < x < 3$

57. $x \geq 8$ or $x \leq -2$

58. $x \geq 7$ or $x < 3$

Solve.

59. $|x + 9| > 15$

60. $|x - 4| \leq 5$