

Summer Assignment for Students Going Into Algebra 2 (all grades)

Directions:

- ❑ Complete this packet one topic at a time following the directions below:
 - ❑ Complete all problems in the section, showing all of your work. If there is no work to show, write a sentence or two explaining your answer. **You may not use a calculator on this assignment. Only questions with work and/or explanations will be counted as complete.**
 - ❑ Write your final answer/solution on the chart on the next page.
 - ❑ Check your answers using the answer key on the last page of this packet.
 - ❑ If a question is wrong, that's okay! Check your work for any mistakes and try again :).
 - ❑ If multiple questions are wrong or you don't understand how to arrive at the correct answer, it's probably time to get extra help (see below).
- ❑ If you need extra help you should:
 - ❑ Use Khan Academy as a resource to refresh your understanding of the topics. There are mini-units on Khan Academy with practice problems that might be helpful.
 - ❑ Reach out to a friend that might be able to help explain a concept to you - remember, getting help is ok, but getting answers is not - we want you to understand the material in this assignment as you will be using it moving forward this year and for the years to come!!
- ❑ Bring this packet with you on the first day of school.
 - ❑ While we will be looking at the chart to see trends across the class, your grade will be based on **completion** not correct answers.
 - ❑ Please draw a ☆ next to any topic you would like your teacher to review with you or the whole class.

Name: _____

Solution/Reflection Chart

Topic	Question	My Answer	Correct?
Evaluating Expressions	1		
	2		
	3		
	4		
Simplifying Expressions (Like Terms)	5		
	6		
	7		
	8		
Solving Equations	9		
	10		
	11		
Solving Literal Equations	12		
	13		
	14		
	15		
Word Problems	16		
	17		
Linear Inequalities	18		
	19		
	20		
	21		
Slope	22		
	23		
	24		
	25		

Graphing Linear Equations	26	Graph	
	27		
	28		
	29		
Slope Intercept Form	30		
	31		
	32		
Solving Systems of Linear Equations	33	Graph	
	34		
	35		
	36		
	37		
	38		
Factoring Expressions	39		
	40		
	41		
	42		
	43		
	44		
	45		
	46		
Solving Quadratic Equations	47		
	48		
Simplifying Expression (Exponents & Radicals)	49		
	50		
	51		
	52		

Topic 1: Evaluating Expressions

1. $-3 - 6 \div 2 - 12$

2. $-5 \div 1 + 2(7 - 10)^2$

3. $7x - 3x - 8x^2$ when $x = -1$

4. $3ab^2 + 5a^2b - 1$ for $a = 2$ and $b = -2$

Topic 2: Simplifying Expressions (Like Terms)

5. $7y - 2x + 5x - 3y + 2x$

6. $4(3 - x) + 5(x - 6)$

7. $6x^2 - 3x + 5x^2 + 2x$

8. $2(x^2 + x) - 3(x^2 - 4x)$

Topic 3: Solving Equations

9. $2 - 3a = 4 + a$

10. $8(n - 6) = -16$

11. $-4x - 4 = 3(2 - x)$

Topic 4: Solving Literal Equations

Solve for y in terms of x

12. $5x - y = 10$

13. $x + 4y = -8$

14. $0.1x + 0.5y = 3.5$

15. Solve for L: $P = 2L + 2W$

Topic 5: Word Problems

16. How long will it take to drive 325 miles at 55 miles per hour?

17. While on vacation, you take a taxi from the airport to your hotel for \$21.85. The taxi costs \$2.95 plus \$1.35 per mile. How far is it from the airport to the hotel?

Topic 6: Linear Inequalities

Solve each of the following inequalities and graph your solution(s) on a number line

18. $12 - 5x \geq -13$

19. $-3x + 4 \geq 2x + 19$

20. $-3 \leq 2y + 1 \leq 10$

21. $3a + 1 < -2$ or $3a + 1 > 7$

Topic 7: Slope

Determine the slope of the line passing through the given points

22. (3, 6) and (-6, 0)

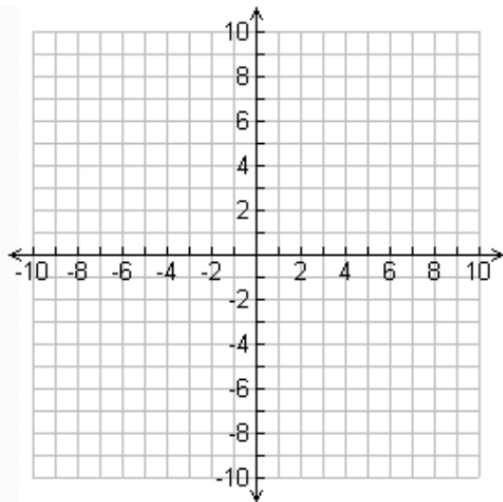
23. (2, 4) and (-2, 4)

24. (-7, 2) and (-1, -4)

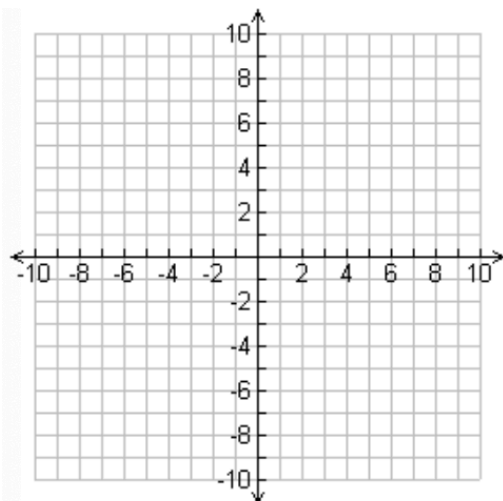
25. (5, 1) and (5, 4)

Topic 8: Graphing Linear Equations

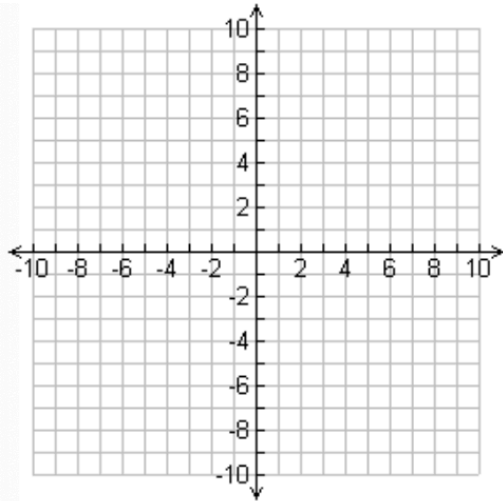
26. $y = -x + 3$



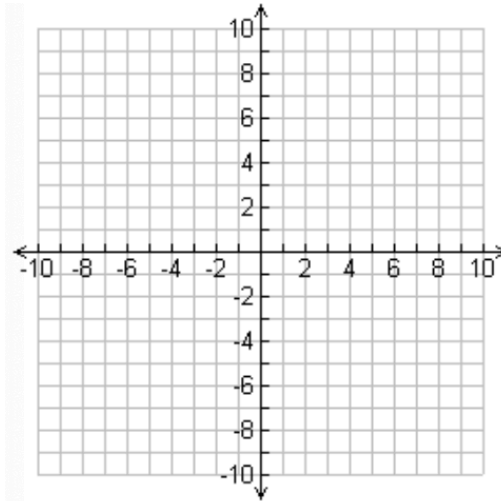
27. $y = \frac{5}{3}x - 5$



28. $4x + 2y = 6$



29. $-4x + 8y = -16$



Topic 9: Slope Intercept Form

Write each equation in slope intercept form

30. Slope = -1, y-intercept: (0, 2)

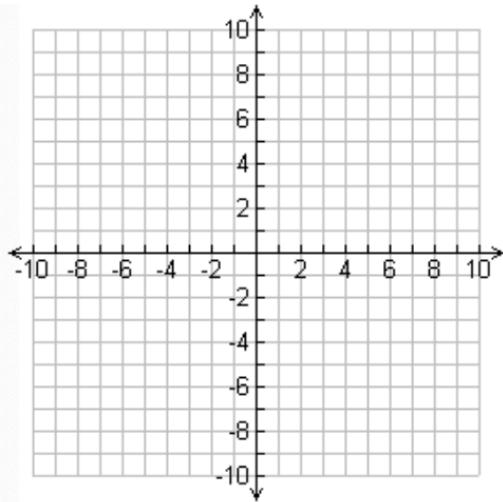
31. Slope = 3, contains the point (-4, 1)

32. Passes through the points (3, -8) and (8, 2)

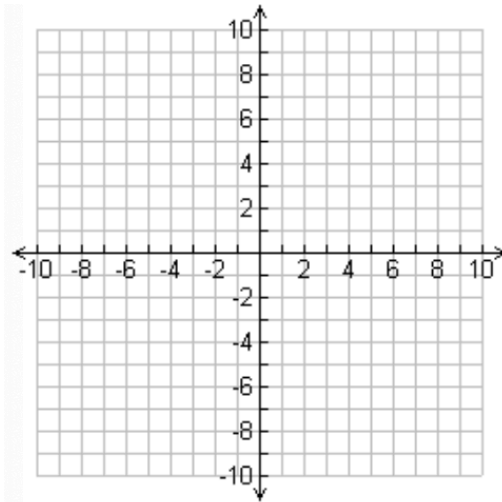
Topic 10: Systems of Linear Equations

Solve each system graphically:

33. $x + y = 2$
 $2x - 3y = 9$



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



Solve each system using any algebraic method:

35. $9x - 5y = -30$
 $x + 2y = 12$

36. $x + 3y = -2$
 $x + 2y = 2$

37. $2x + 3y = -7$
 $-4x - 5y = 13$

38. $3x + 4y = 15$
 $-2x + 6y = 3$

Topic 11: Factoring Expressions

39. $5x^2 - 15x$

40. $x^2 - 4x - 21$

41. $2x^2 - 18$

42. $3x^2 + 13x - 10$

43. $3x^2 + 7x + 2$

44. $2x^2 - 15x$

45. $4x^2 - 9x + 2$

46. $2x^2 - 13x + 15$

Topic 12: Solving Quadratic Equations

47. $x^2 - 5x - 14 = 0$

48. $3x^2 - 16x + 5 = 0$

Topic 13: Simplifying Expressions (Exponents and Radicals)

49. $(5a^3)^2$

50. $\frac{60x^4y}{15xy}$

51. $\sqrt{28}$

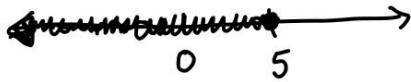
52. $\sqrt{50} + \sqrt{18}$

Answer Key:

1. -18	19. $x \leq -3$ <see graph below>	37. (-2,-1)
2. 13	20. $-2 \leq y \leq \frac{9}{2}$ <see graph below>	38. $(3, \frac{3}{2})$
3. -12	21. $a < -1$ or $a > 2$ <see graph below>	39. $5x(x-3)$
4. -17	22. $\frac{2}{3}$	40. $(x-7)(x+3)$
5. $5x+4y$	23. 0	41. $2(x+3)(x-3)$
6. $x-18$	24. -1	42. $(x+5)(3x-2)$
7. $11x^2 - x$	25. Undefined	43. $(x+2)(3x+1)$
8. $-x^2 + 14x$	26. <see graph below>	44. $x(2x-15)$
9. $a = -\frac{1}{2}$	27. <see graph below>	45. $(4x-1)(x-2)$
10. $n=4$	28. <see graph below>	46. $(2x-3)(x-5)$
11. $x=-10$	29. <see graph below>	47. $x=-2,7$
12. $y=5x-10$	30. $y=-x+2$	48. $x = \frac{1}{3}, 5$
13. $y = -\frac{1}{4}x - 2$	31. $y=3x+13$	49. $25a^6$
14. $y = -\frac{1}{5}x + 7$	32. $y=2x-14$	50. $4x^3$
15. $L = \frac{1}{2}P - W$	33. (3,-1) <see graph below>	51. $2\sqrt{7}$
16. About 5.9 hours	34. No Solution (parallel lines)	52. $8\sqrt{2}$
17. 14 miles	35. (0,6)	
18. $x \leq 5$ <see graph below>	36. (10,-4)	

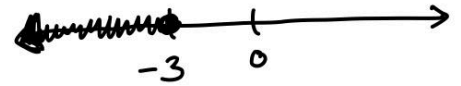
18. $12 - 5x \geq -13$

$$x \leq 5$$



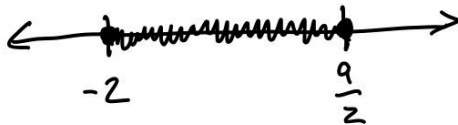
19. $-3x + 4 \geq 2x + 19$

$$x \leq -3$$



20. $-3 \leq 2y + 1 \leq 10$

$$-2 \leq y \leq \frac{9}{2}$$

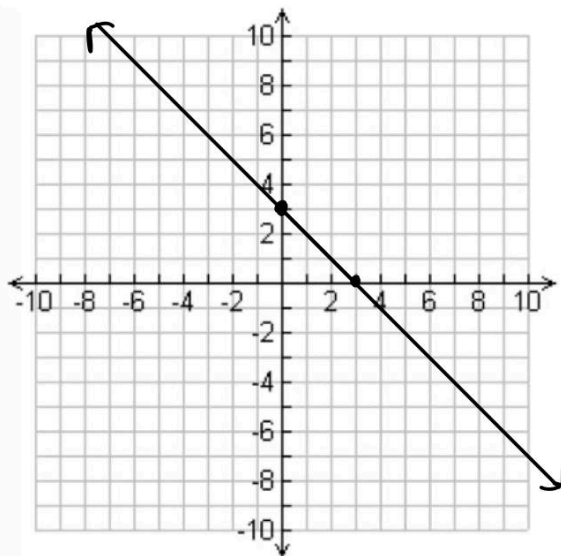


21. $3a + 1 < -2$ or $3a + 1 > 7$

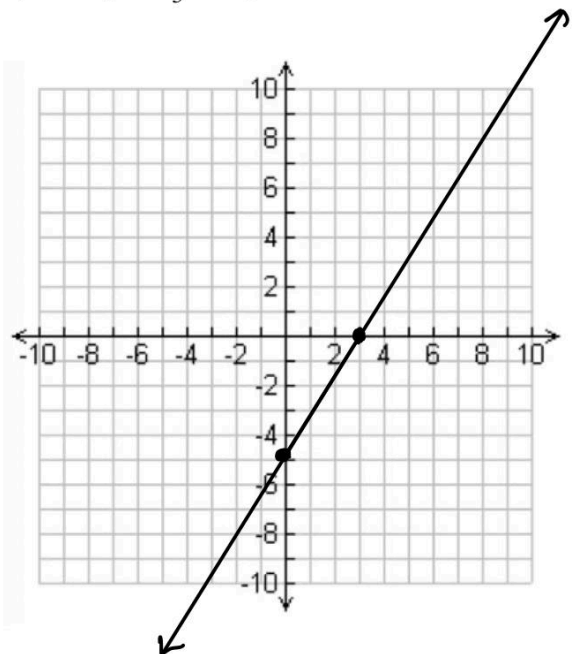
$$a < -1 \text{ or } a > 2$$



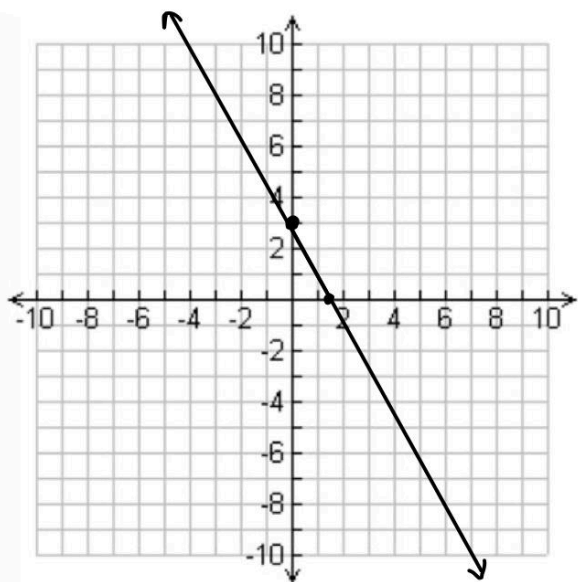
26. $y = -x + 3$



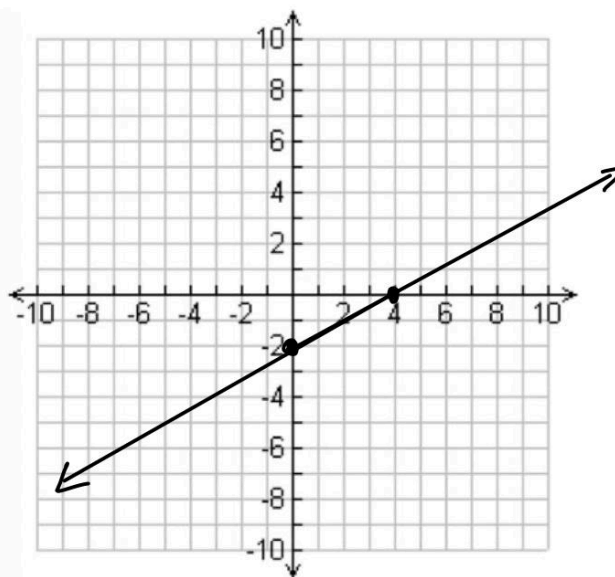
27. $y = \frac{5}{3}x - 5$



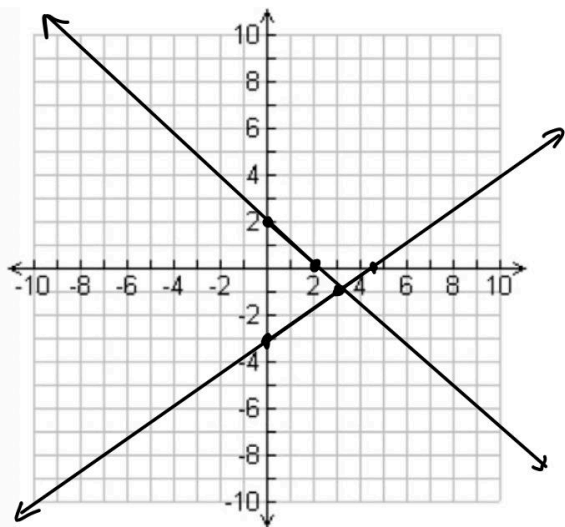
28. $4x + 2y = 6$



29. $-4x + 8y = -16$



33. $x + y = 2$
 $2x - 3y = 9$



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

