

Summer Assignment for Students Going Into 8th, 9th & 10th Grade Geometry (all levels)

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?
Solving Linear Equations	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
Radical Expressions	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		

	25		
	26		
Simplifying Rational Expressions	27		
	28		
	29		
	30		
	31		
Solving Quadratics	32		
	33		
	34		
	35		
	36		
	37		
	38		
	39		
	40		
	41		
42			
43			
Evaluating Formulas	44		
	45		
	46		
	47		
	48		
	49		
Graphing Linear Equations	50	Graph	
	51		

	52		
Equations of Lines	53		
	54		
	55		
Systems of Linear Equations	56		
	57		
	58		
	59		

REMINDER: Please draw a ☆ next to any topic you would like your teacher to review with you or the whole class upon returning to school in the fall

Topic 1: Solving Linear Equations

Show all inverse operations!

1. $7x = -35$

2. $60 = 6x + 12$

3. $\frac{4}{5}x = -20$

4. $5 = -\frac{x}{3}$

5. $\frac{2x-5}{3} = \frac{x+7}{2}$

6. $12 = 3x - 9$

7. $x + 9x = 5$

8. $4x + 23 = 9x - 7$

9. $(4x + 5) + (5x + 40) = 180$

10. $2(4x + 4) = x + 1$

11. $3(180 - x) = 2(90 - x)$

12. $6(x - 2) - 2(x - 7) = 29$

Topic 2: Radical Expressions

Simplify the following expressions completely

13. $\sqrt{81}$

14. $\sqrt{36 + 64}$

15. $\sqrt{36} + \sqrt{64}$

16. $9\sqrt{40}$

17. $\sqrt{300}$

18. $\sqrt{13^3}$

19. $(\sqrt{21})^2$

20. $5\sqrt{18}$

21. $(2\sqrt{3})^2$

22. $\frac{24}{\sqrt{3}}$

23. $\frac{\sqrt{28}}{\sqrt{5}}$

24. $(5\sqrt{6})(4\sqrt{2})$

25. $12\sqrt{48} - 2\sqrt{27}$

26. $5\sqrt{50} + 6\sqrt{125} + 7\sqrt{98} - 3\sqrt{20}$

Topic 3: Simplifying Rational Expressions

Simplify completely

27. $\left(\frac{12}{35}\right)\left(\frac{22}{44}\right)$

28. $\left(4\frac{2}{3}\right) + \left(2\frac{3}{16}\right)$

29. $\left(\frac{13}{15}\right) + \left(\frac{11}{30}\right)$

30. $\frac{5xy}{10x^2}$

31. $\frac{9x - 6y}{3}$

Topic 4: Solving Quadratics

Solve by any method of your choice. Show all work.

32. $x^2 + 3^2 = 4^2$

33. $x^2 + 5^2 = 10^2$

34. $x^2 + 5^2 = (5\sqrt{2})^2$

35. $x^2 - 7x - 18 = 0$

36. $x^2 - 8x = 0$

37. $x^2 - 144 = 25$

38. $x^2 - 7x + 12 = 0$

39. $x^2 = 3x + 4$

40. $x(x + 5) = 14$

41. $x^2 + 5x + 2 = 0$

42. $2x^2 - x - 3 = 0$

43. $x^2 - 4x + 1 = 0$

Topic 5: Evaluating Formulas

Evaluate each of the following and express your answer in simplest form

44. $\frac{x+5}{y-2}$ for $x = -2$ and $y = -4$

45. $\frac{1}{3}x^2h$ when $x = 4\sqrt{3}$ and $h = 6$

46. $\sqrt{(x-5)^2 + (y-3)^2}$ when $x = 1$ and $y = 0$

47. The area of a triangle is $A = \frac{1}{2}bh$. Determine A , when $b = 4$ and $h = 20$

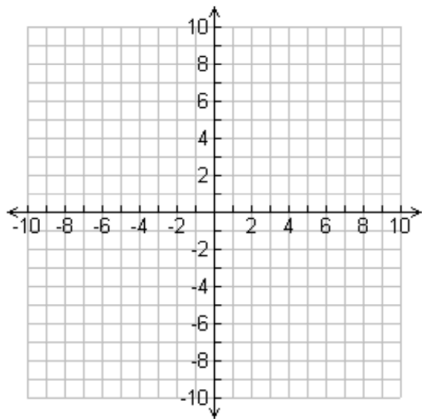
48. Given $a^2 + b^2 = c^2$, determine c when $a = 15$ and $b = 20$

49. The area of a trapezoid is $A = \frac{1}{2} h(a + b)$. Determine the area if $h = 3$, $a = 3\sqrt{2}$, and $b = 7\sqrt{2}$

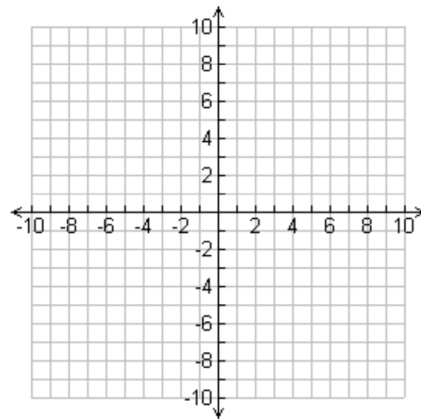
Topic 6: Graphing Linear Equations

Graph each line **and** provide the coordinates of the x - and y -intercepts

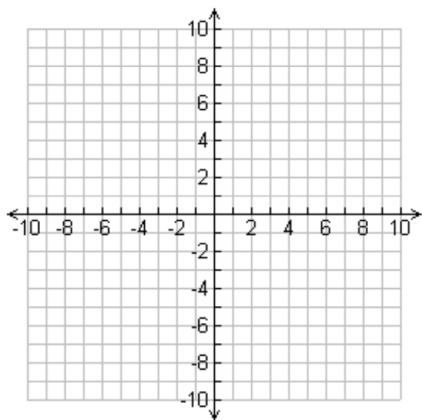
50. $y = 2x + 3$



51. $y = \frac{3}{5}x - 10$



52. $2x + 3y = 12$



Topic 7: Equations of Lines

53. Determine the slope of a line that passes through the points $(-1, -8)$ and $(-7, 20)$

54. Write the equation of the line that passes through the point $(3, 9)$ and is parallel to the line $y = 5x - 15$

55. Write an equation of the line that passes through the point $(6, 10)$ and is perpendicular to the line $y + 2x = 8$

Topic 8: Systems of Linear Equations

Solve for the (x, y) coordinates of the intersection of the two lines

56. $y = 2x + 5$
 $3x - y = 4$

57. $x = 8 + 3y$
 $2x - 5y = 8$

58. $3x + y = 19$
 $2x - 5y = -10$

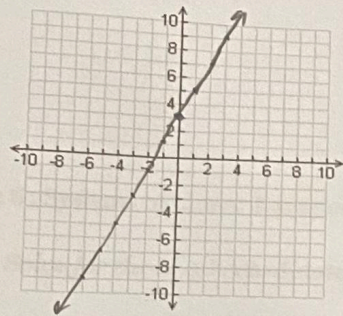
59. $2x + 3y = 4$
 $5x + 4y = 3$

Answer Key:

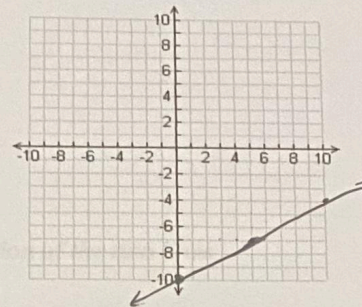
1. $x=-5$	21. 12	41. $x = \frac{-5 \pm \sqrt{17}}{2}$
2. $x=8$	22. $8\sqrt{3}$	42. $x=-1$ or $x=3/2$
3. $x=-25$	23. $\frac{2\sqrt{35}}{5}$	43. $x = 2 \pm \sqrt{3}$
4. $x=-15$	24. $40\sqrt{3}$	44. $-1/2$
5. $x=31$	25. $42\sqrt{3}$	45. 96
6. $x=7$	26. $74\sqrt{2} + 24\sqrt{5}$	46. 5
7. $x=1/2$	27. $6/35$	47. 40 square units
8. $x=6$	28. $6\frac{41}{48}$	48. $c = \pm 25$
9. $x=15$	29. $37/10$ or $1\frac{7}{30}$	49. $15\sqrt{2}$ square units
10. $x=-1$	30. $\frac{y}{2x}$	50. x-int:(-3/2,0) and y-int:(0,3) <graph below>
11. $x=360$	31. $3x-2y$	51. x-int:(50/3,0) and y-int:(0,-10) <graph below>
12. $x=27/4$ or 6.75	32. $x = \pm \sqrt{7}$	52. x-int:(6,0) and y-int:(0,4) <graph below>
13. 9	33. $x = \pm 5\sqrt{3}$	53. $-14/3$
14. 10	34. $x = \pm 5$	54. $y=5x-6$ or other forms
15. 14	35. $x=-2$ or $x=9$	55. $y = \frac{1}{2}x + 7$ or other forms
16. $18\sqrt{10}$	36. $x=0$ or $x=8$	56. (9,23)
17. $10\sqrt{3}$	37. $x = \pm 13$	57. (-16,-8)
18. $13\sqrt{13}$	38. $x=3$ or $x=4$	58. (5,4)
19. 21	39. $x=-1$ or $x=4$	59. (-1,2)
20. $15\sqrt{2}$	40. $x=-7$ or $x=2$	

Graph each line **and** provide the coordinates of the x- and y-intercepts

50. $y = 2x + 3$



51. $y = \frac{3}{5}x - 10$



52. $2x + 3y = 12$

