

FUNDAMENTALS OF GEOMETRY, GEOMETRY, and HONORS GEOMETRY
2020 – 2021 SUMMER WORK

This packet is meant to provide an opportunity for the incoming Geometry students to review Algebra 1 concepts that will be used throughout the Geometry course. At the start of each section is a topic to search for on Kahn Academy. If you are unsure of how to attempt these problems, please use any resources available to you. Below is a list of other helpful websites.

Khan Academy	www.khanacademy.org
Purple Math	www.purplemath.com
Cool Math	www.coolmath.com
You Tube	www.youtube.com

This packet is to be completed by the first day back to school in the fall. You will be tested on this material in the first two weeks of class. You will also be expected to efficiently work through the problems under a time constraint. Many students are not prepared for this expectation, so please prepare accordingly. Wait until at least mid-summer to begin this packet. We hope you take this seriously, as we sincerely wish for you to be successful through this next year.

Good luck!

Sincerely,
Your Geometry Teachers

Solve. (Khan Academy: Multi Step Equations)

Video refresher: [Algebra - Solving Multi step Equations](#)

1. $\frac{3}{2}x = -10$

2. $\frac{x-5}{4} = \frac{3}{2}$

3. $2(x-7) = 2x+14$

4. $3x-4 = -x-11$

Find the slope of the line passing through the following points: (Khan Academy: Slope)

Video refresher: [Slope from two ordered pairs example 1 | Algebra I | Khan Academy](#)

5. (5, 4) and (-3, 4)

6. (-1, 5) and (4, -9)

7. (5, -5) and (5, -3)

8. The line $2x+3y=6$

9. The line parallel to $y=x$

10. The line perpendicular to $y=6x-4$

11. A line has a slope of 4. What is the slope of a line parallel? What is the slope of a line perpendicular?

12. Give the slope of a line parallel to $2x-y=5$.

13. Give the slope of any line perpendicular to $y=-3x+1$

Give the equation of the line in slope intercept form: (Khan Academy: Slope Intercept Form)

Video refresher: [Slope Intercept Form](#)

14. Passes through (6, -1), and has a slope of $\frac{2}{3}$

15. Passes through (-4, 6) and (2, 8).

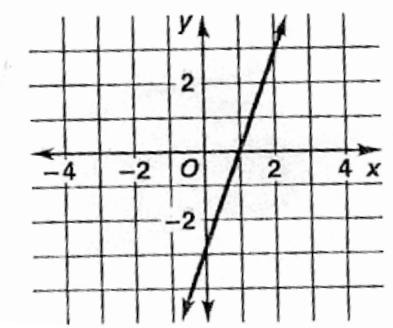
Use the graph to answer the following:

16. Find the slope ([Video refresher](#)) _____

17. Find the x -intercept ([Video refresher](#)) _____

18. Find the y -intercept ([Video refresher](#)) _____

19. Equation: slope intercept form: ([Video refresher](#)) _____



Solve each system. (Khan Academy: Solving Systems of Equations)

Video Refresher: [Elimination](#)

[Substitution](#)

Algebra

20.
$$\begin{cases} y = -2x \\ x + y = 12 \end{cases}$$

21.
$$\begin{cases} y - 2x = 6 \\ 4x - 2y = -12 \end{cases}$$

22.
$$\begin{cases} 3s - 5t = -16 \\ 2s + 5t = 31 \end{cases}$$

23.
$$\begin{cases} 3x - 2y = 8 \\ 2x + 3y = 14 \end{cases}$$

24.
$$\begin{cases} a + b = 10 \\ a - b = -10 \end{cases}$$

25.
$$\begin{cases} y = -6 \\ 5x - y = 26 \end{cases}$$

Factor. (Khan Academy: Factoring- Quadratics and GCF)

Video refresher: [Factoring \(a = 1\)](#)

Video refresher: [Factoring \(a > 1\)](#)

26. $3x^2 + 15x - 18$

27. $x^2 + 3x - 6$

28. $3a^2 - 2a - 21$

29. $y^2 + 6y - 40$

30. $7x^2y + 14xy^2$

31. $5x^2 - 17x + 14$

32. $5a^2 - 20a + 15$

33. $2n^2 - 11n - 13$

34. $25x^2 - 70x + 49$

36. $4k^2 + 2k - 12$

37. $8x^2 - 72$

38. $x^2 + 22x + 121$

39. $36x^2 - 12x + 1$

40. $-y^2 + 100$

Solve. (Khan Academy: Solving Quadratics Using Factoring)

Video refresher: [Solving Quadratics Using Factoring](#)

41. $16x^2 - 64 = 0$

42. $16x^2 + 8x + 1 = 0$

43. $25x^2 + 20x + 4 = 0$

44. $x^2 + 11x + 24 = 0$

45. $x^2 + 2x = 24$

46. $x^2 + 14x = -33$

47. $16x^2 + 4x = 0$

48. $0 = x^2 - 9$

49. $(3x - 1)(x + 6) = 0$

Simplify. (Khan Academy: Radical Expressions- Simplifying, Rationalizing, Adding/Subtracting, Multiplying)

Video refresher: [Simplifying](#), [Rationalizing](#), [Adding](#), [Subtracting](#)

50. $\sqrt{52}$

51. $(2\sqrt{2})(3\sqrt{24})$

52. $\sqrt{\frac{10}{3}}$

53. $\frac{\sqrt{6}}{\sqrt{12}}$

54. $(3 + \sqrt{2})(3 - \sqrt{2})$

55. $12\sqrt{5} - 3\sqrt{7} - 6\sqrt{7} - 8\sqrt{5}$

56. $2\sqrt{20} + 3\sqrt{45} + \sqrt{180}$

57. $(3 - \sqrt{5})^2$

58. $\sqrt{6}(\sqrt{3} + 5\sqrt{2})$

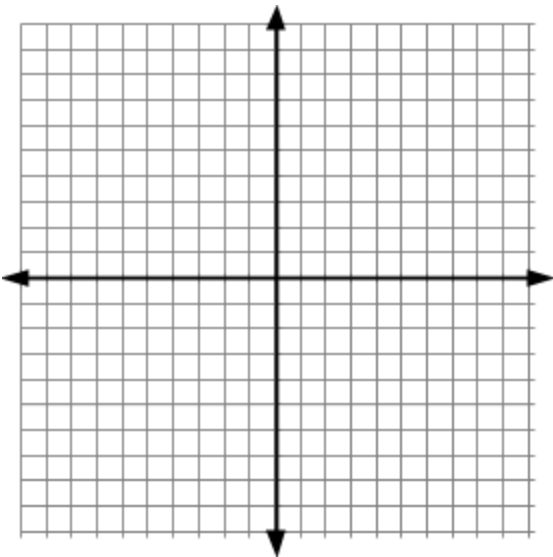
59. $(4\sqrt{5} - 2\sqrt{3})(3\sqrt{6} - \sqrt{10})$

Graph the following equations. (Khan Academy: Graphing Linear Equations)

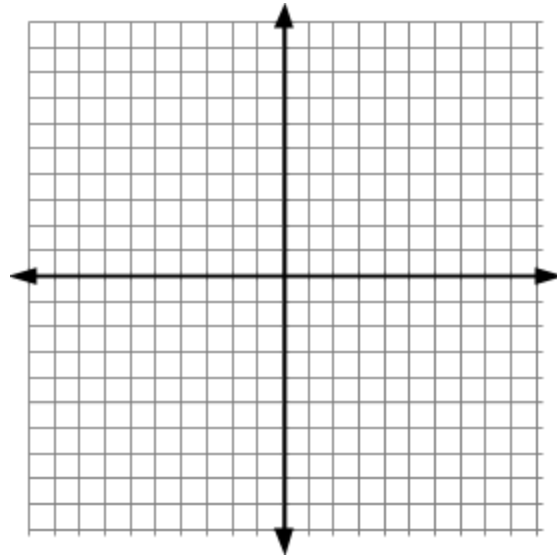
Video refresher: [Slope-intercept](#)

Video refresher: [x & y intercepts](#)

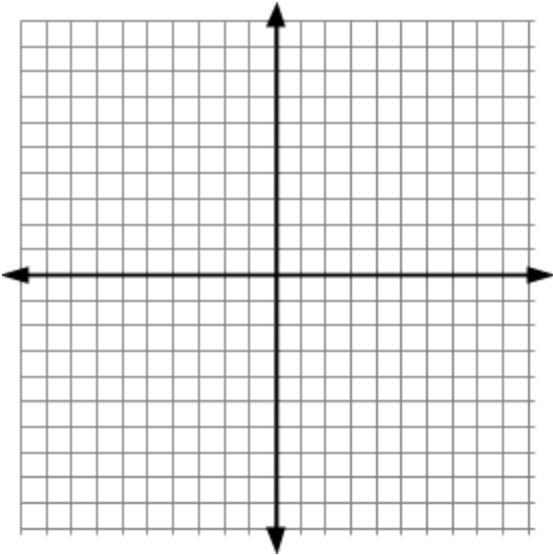
60. $y = -\frac{1}{4}x - 3$



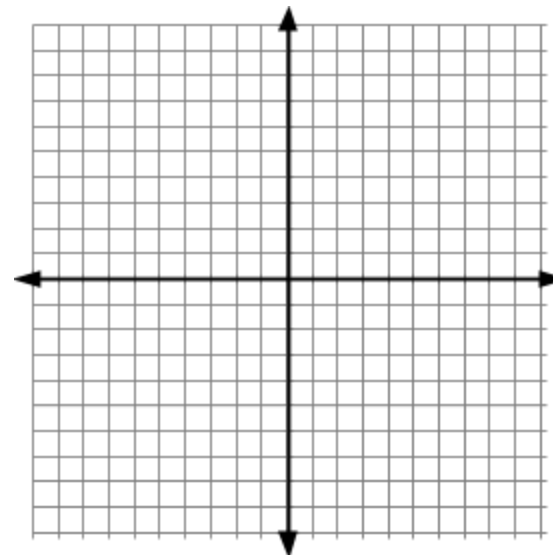
61. $3x + 5y = -15$



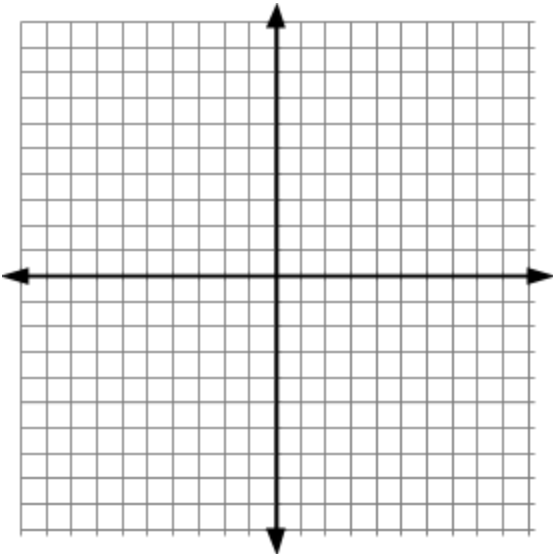
62. $y = 8$



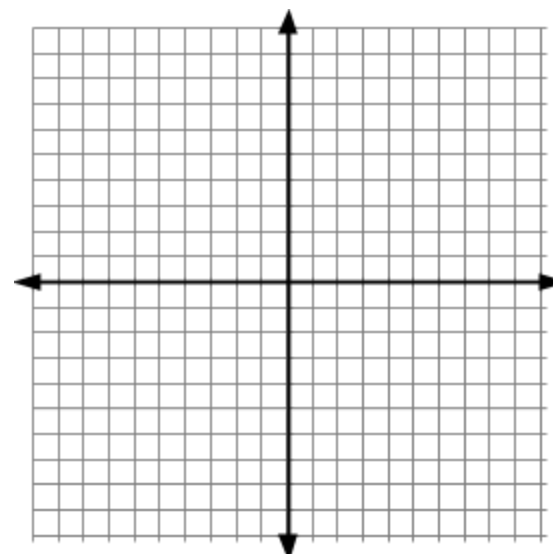
63. $y = -5x$



64. $x - y = 1$



65. $x - 5y = 0$



Solve. (Khan Academy: Solving Linear Inequalities)

Video refresher: [Solving linear inequalities](#)

66. $5b - 1 \geq -11$

67. $21 > 15 + \frac{a}{2}$

68. $-\frac{2}{3}x - 4 \geq 4$

69. $7x + 37 < 13x - 11$

70. $3x - 2(8x - 9) > -2x - 4$

71. $3x - 6x + 8 < -10$

72. $4x - 6 \geq 6x - 20$

73. $6 > \frac{3}{4}x + 12$

74. $10 > -6 + 2x$

75. $10 \geq 2m - 2(m - 5)$