



## Geometry Honors Summer Assignment

Dear Parents/Students,

In the summer time, many necessary mathematical skills are lost due to the absence of daily exposure. The loss of skills may result in a lack of success and unnecessary frustration for students as they begin the new school year. The purpose of this math assignment is to set the stage for instruction for the 2018-2019 school year. Packets are to be downloaded, printed out, and worked on neatly in the packet or on a separate piece of paper. Additionally, students should attempt all problems without calculators. The completed packet is due on the first day of school during math class and will be worth 30 points.

The packet is a review of previously taught concepts. Each concept includes a quick review and practice. Some might even include review videos students can access. Additional help can be found at [www.khanacademy.org](http://www.khanacademy.org). These skills are required to be successful in the upcoming year. We will be briefly reviewing this information on the first day of school, and then moving into the class curriculum.

Thank you,

The High School Math Team

Name \_\_\_\_\_

**Geometry Honors**  
**Summer Assignment**

Write an algebraic expression for each verbal expression

- Nine less than the product of six and a number
- The quotient of six, and the sum of a number and seven
- The difference of the cube of a number and the square of another number
- Fifteen decreased by triple a number
- The product of the difference of a number and eight, and the sum of the number and one

Write a verbal expression for each algebraic expression

- $x^2(3x - 7)$
- $(y + 3)y^3$
- $\frac{2}{3}(12 - 7x)^4$
- $\frac{(z^2 - w)}{(z + w)}$
- $\frac{2k + 1}{p - 3}$

Evaluate each expression for:

$$x = 2, y = -3, z = -5, w = 4$$

- $\frac{-2y - z}{|-w + x|}$
- $-(-3z + 4)(xy^2)$
- $z^2 - 5wy$
- $(w - 5y)(wx)$
- $-\frac{xyz}{y^2z^2}$

Solve each equation

- $4(y - 6) = 52$
- $3 - 5(1 - x) = 133$
- $2x + 3(x + 35) = 0$
- $9 = -\frac{3}{5}x$
- $\frac{2}{9}x - 4 = \frac{2}{3}$
- $-2(n - 7) = 12(3 - 2n)$

Simplify each radical expression

- $\sqrt{32}$
- $-2\sqrt{24}$

24.  $6\sqrt{75} + 2\sqrt{48} - 8\sqrt{27}$

25.  $\sqrt{\frac{16}{49}}$

26.  $\sqrt{\frac{36x^2}{9y^4}}$

27.  $\sqrt{18} \cdot \sqrt{6}$

28.  $\frac{6}{\sqrt{27}}$

29.  $\frac{5 - \sqrt{7}}{\sqrt{3} + 5}$

Solve each proportion

30.  $\frac{3}{8} = \frac{15}{x}$

31.  $\frac{2.4}{3.6} = \frac{y}{1.8}$

32.  $\frac{7}{x + 9} = \frac{21}{36}$

33.  $\frac{3}{10} = \frac{\frac{1}{8}}{x}$

34.  $\frac{4w + 7}{15} = \frac{6w + 2}{10}$

35.  $\frac{2n - 4}{5} = \frac{3n + 3}{10}$

36.  $\frac{9b - 3}{9} = \frac{5b + 5}{3}$

Solve and graph the following linear inequalities

37.  $-6 \leq 3(5x - 2)$



38.  $-3x + 7 > 43$



39.  $-3 \geq \frac{2}{3}r + 9$



40.  $4m - 17 < 6m + 25$



41.  $3 - 8x \geq 9 + 2(1 - 4x)$



42.  $-5 < 3p + 7 \leq 22$



43.  $14 \geq 4m - 2$  or  $5 - 3m \leq -13$



Solve the following systems of linear equations

44.  $y = 5x + 1$   
 $4x + y = 10$

45.  $5x - y = 5$   
 $-x + 3y = 13$

46.  $2x - y = 4$   
 $7x + 3y = 27$

47.  $x - y = -8$   
 $7x + 5y = 16$

48.  $4x + 7y = -80$   
 $3x + 5y = -58$

49.  $8x + 3y = 4$   
 $-7x + 5y = -34$

50.  $\frac{1}{4}x + 4y = 2\frac{3}{4}$   
 $3x + \frac{1}{2}y = 9\frac{1}{4}$

Simplify the following using only positive exponents

51.  $a^3 \cdot a^7$

52.  $y^{-3} \cdot 4y^5$

53.  $\frac{z^{10}}{z^{-2}}$

54.  $\frac{z^8}{z^{12}}$

55.  $\frac{8x^3y}{2x^2y^2} \cdot \frac{3xy^5}{6x^2y^{-1}}$

56.  $\left(\frac{24t^6}{-8t^3}\right)^4$

57.  $(6x^3y^2)(-x^{-2}y^{-5})$

58.  $\left(\frac{-3r^2}{2t^3}\right)^{-2}$

59.  $(6y^4)^{-2}$

60.  $-2(12c^3)^0$

Simplify the following polynomials and write in standard form

61.  $(a^3b + ab^2 + ab) - (4a^3b - ab^2 - 5ab)$

62.  $-2j(-3 - 2j^2 - 8j)$

63.  $-3y^2(4y^2 + 6y)$

64.  $t(t + 4) - t(2 + 4t)$

65.  $2c(2c - 4) + c(-5 + 3c)$

Factor the GCF from each polynomial

66.  $9a^5 + 27a^4 + 18a^2$

67.  $34g^3 + 51g^2 + 17g$

68.  $x^6 - x^4 + x^2$

69.  $8c^4 + 24c^3 + 16c$

70.  $36c^4 + 9c^3 - 18c^2$

Simplify each expression completely. Write your answers in standard form.

71.  $(5m - 2)(m + 4)$

72.  $(-x - 5)(3x - 1)$

73.  $(c + 2)(6 + 10c)$

74.  $(2a^2 - 4)(-a + 12)$

75.  $(4x - 5)^2$

76.  $(-8w - 3z)^2$

77.  $(6 - 4b)(6 + 4b)$

78.  $(8c - 5d)(8c + 5d)$

79.  $(g - 6)(5g^2 - 9g + 7)$

80.  $(-2h^2 - h)(3 - 6h^2 + 3h)$

Factor each expression completely

81.  $w^2 + 19w + 60$

82.  $n^2 - 2n - 63$

83.  $2h^2 + 10h - 72$

84.  $3x^3 - 33x^2 + 54x$

85.  $g^2 - 13gh + 42h^2$

86.  $4z^2 - 26z + 30$

87.  $5g^2 - 17g + 14$

88.  $25p^2 + 20pq - 12q^2$

89.  $m^2 + 22n + 121$

90.  $9r^2 - 30rs + 25s^2$

91.  $4f^2 - 9$

92.  $27d^2 - 48$

93.  $25x^3 + 15x^2 - 5x - 3$

94.  $10w^2 - 14wv - 15w + 21v$

Solve each quadratic equation. If necessary, use the Quadratic Formula. Write your answers in simplified fraction form or simplified radical form. No decimal equivalents.

95.  $p^2 + 5p - 84 = 0$

96.  $h^2 - 17h = -60$

97.  $3h^2 + 2h - 16 = 0$

98.  $8q^2 - 10q + 3 = 0$

99.  $10r^2 - 21r = -4r + 6$

100.  $2x^3 - x^2 - 18x + 9 = 0$

101.  $2z^3 + 3z^2 - 32z - 48 = 0$

102.  $10x^2 - 5x = 25$

103.  $x^2 - 6x - 2 = 0$

104.

104.  $2x^2 - 3x = 36$

Identify the slope and y-intercept of the following linear equations

105.  $2x - 4y = -12$

106.  $4x + 3y = -9$

107.  $-2(-4x + 3) - 2y = -4$

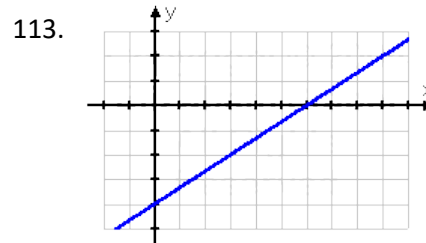
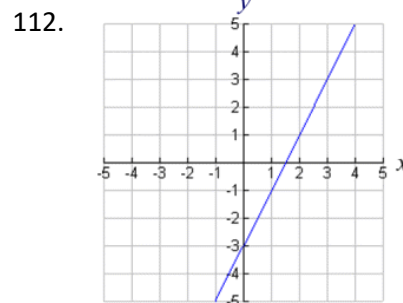
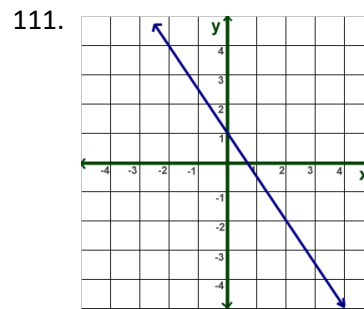
Find the slope of the line that passes through each pair of points

108.  $(0, -1), (-2, 3)$

109.  $(6, -4), (6, 6)$

110.  $(-\frac{1}{2}, \frac{3}{5}), (8, -\frac{3}{10})$

Find the slope of each line



Determine whether the graphs of the given equations are parallel, perpendicular, or neither

114.  $y - 4 = 3(x + 2)$   
 $-2x - 6y = 12$

115.  $y = 4x - 2$   
 $-x + 4y = 0$

116.  $y = 2x + 3$   
 $2x - y = 7$

Write an equation in point-slope form that passes through the given point and is parallel to the graph of the given equation. Then write it in slope-intercept form

117.  $(-5, -3); y = -\frac{2}{3}x - 13$

118.  $(2, -7); y = \frac{3}{2}x - 3$

Write an equation in point-slope form that passes through the given point and is perpendicular to the graph of the given equation. Then write it in slope-intercept form.

119.  $(0, -5); y = \frac{1}{6}x + \frac{1}{3}$

120.  $(3, -7); y = -\frac{2}{3}x - 5$

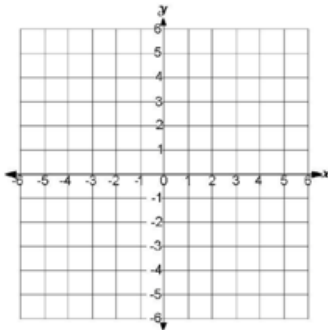
Write each equation in standard form using integers

121.  $-\frac{1}{4}x = \frac{3}{2}y - 7$

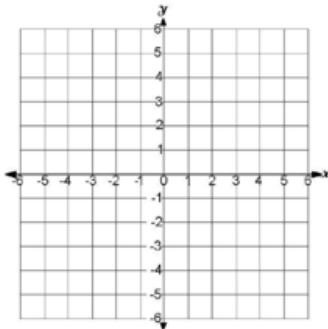
122.  $y - 7 = -\frac{1}{5}(x + 3)$

Write each equation in slope-intercept form. Then graph the equation

123.  $-2(4x - 3) - 2y = -6x$

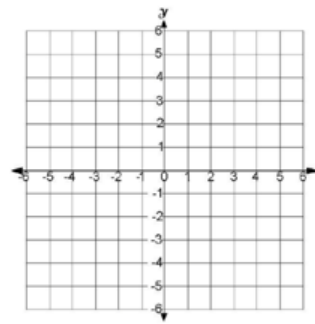


124.  $-3y + 9x = -5y + 6x - 4$

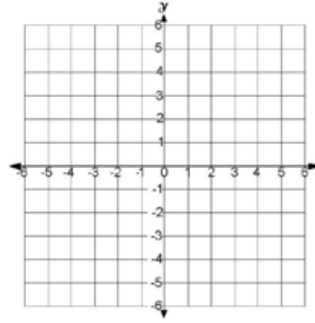


Graph each equation

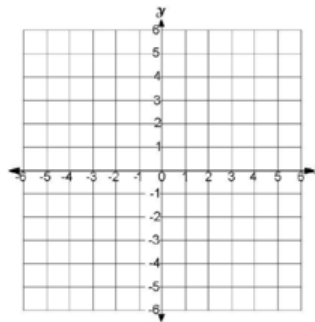
125.  $y - 2 = -(x + 4)$



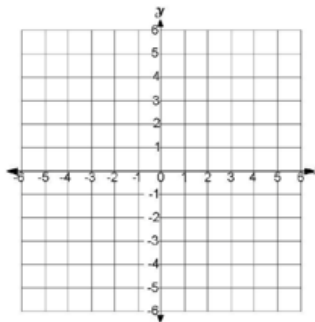
126.  $y + 5 = -\frac{3}{4}(x - 3)$



127.  $4x - 5y = 20$



128.  $y = -4$



129.  $x = 3$

