

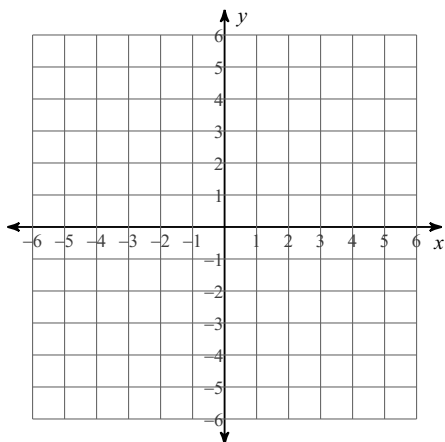
Summer Work Assignment

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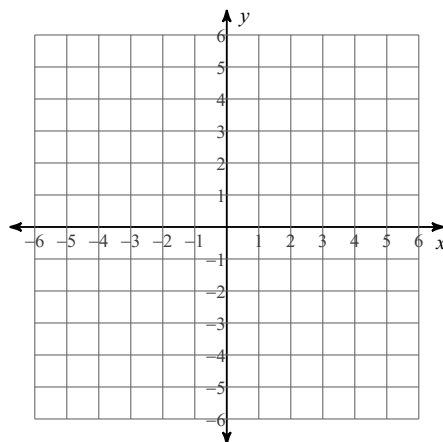
# Students Entering Geometry Honors

**Graph each equation.**

1)  $y = |x - 2| - 1$



2)  $y = |x + 1| - 4$



**Solve each equation.**

3)  $|-9k - 5| = 23$

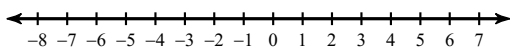
4)  $|2n + 4| = 10$

5)  $8 + |7 - 7x| = 15$

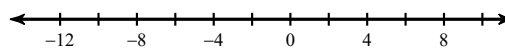
6)  $9|6a + 2| = 90$

**Solve each inequality and graph its solution.**

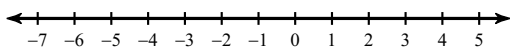
7)  $|10n + 5| \geq 35$



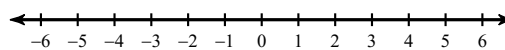
8)  $|-5 - 3n| > 20$



9)  $\frac{|10n + 5|}{10} \geq 2$



10)  $8|9r + 4| > 104$



**Find the distance between each pair of points.**

11)  $(0, -5), (-4, 1)$

12)  $(5, -1), (-8, 8)$

13)  $(-\sqrt{2}, -5\sqrt{5}), (5\sqrt{2}, \sqrt{5})$

14)  $(\sqrt{5}, -3), (-\sqrt{5}, 0)$

**Simplify each expression.**

15)  $-n(3n + 6) + 5n(n + 4)$

16)  $-7n(4n + 7) - 8(-4n + 6)$

**Divide.**

17)  $(m^2 - 8m - 18) \div (m + 1)$

18)  $(b^2 - 8b + 14) \div (b - 4)$

**Simplify.**

19)  $\frac{4}{\sqrt{3} + 2}$

20)  $-\frac{1}{4 + 5\sqrt{3}}$

**Simplify each expression.**

21)  $\frac{n - 7}{n^2 - 5n - 14} \div \frac{4n^2}{n - 1}$

22)  $\frac{3x^2}{9x - 63} \div \frac{1}{x - 7}$

23)  $\frac{n - 1}{n^2 + 7n - 8} \div \frac{2}{n^2 + n - 56}$

24)  $\frac{2x - 16}{3x} \div \frac{2x - 16}{6x}$

**Solve each equation for the indicated variable.**

25)  $z + mx = yx$ , for  $x$

26)  $gc = \frac{x + y}{x}$ , for  $x$

27)  $z = ma + ba$ , for  $a$

28)  $u + kx = yx$ , for  $x$

**Solve each equation.**

29)  $4(-10x - 10) - (x - 12) = -12x - x$

30)  $-12x + 9x = -10(x + 3) - (6 + 5x)$

31)  $-11(1 + 4x) + 2x = -7(4 + 6x)$

32)  $11 + 11(x + 1) = 11(x + 6)$

33)  $11(n - 2) = -7 - (n - 9)$

34)  $12(4 + 2n) = 2(10 + 5n)$

**Solve each proportion.**

$$35) \frac{4}{2} = \frac{b-4}{b+5}$$

$$36) \frac{7}{a-1} = \frac{4}{a-11}$$

$$37) \frac{12}{p-8} = \frac{8}{p-1}$$

$$38) -\frac{4}{6} = \frac{x+12}{x+10}$$

**Solve each equation by factoring.**

$$39) 2a^2 + 35 = -17a$$

$$40) 18x^2 + 69x - 280 = -8x + 4x^2$$

**Solve each equation. Remember to check for extraneous solutions.**

$$41) -5 = -n + \sqrt{n+15}$$

$$42) p = 7 + \sqrt{25 - 3p}$$

$$43) \frac{7}{x+6} = \frac{1}{x+6} - 1$$

$$44) \frac{1}{v^2 + 3v - 10} + \frac{12v - 18}{v^2 + 3v - 10} = \frac{8}{v - 2}$$

$$45) \frac{7}{b^2 - 9b + 8} - \frac{1}{b - 8} = 1$$

$$46) \frac{r}{3} + \frac{3r + 18}{r - 6} = \frac{r^2 - 5r - 24}{3r - 18}$$

**Simplify. Your answer should contain only positive exponents.**

$$47) \frac{(x^5 y^3)^3}{2x^2 \cdot 2x^{-3} y^5}$$

$$48) \frac{2yx^3 \cdot yx^3}{(yx^4)^4}$$

$$49) \frac{2x^{-5} y^0}{(2x^{-2} y^0)^3 \cdot x^{-4}}$$

$$50) \left( \frac{2x^2 y^{-3} \cdot x}{x^{-4} y^{-2}} \right)^{-3}$$

$$51) -\frac{2x^0 \cdot (2x^{-3} y^4)^3}{2xy^4}$$

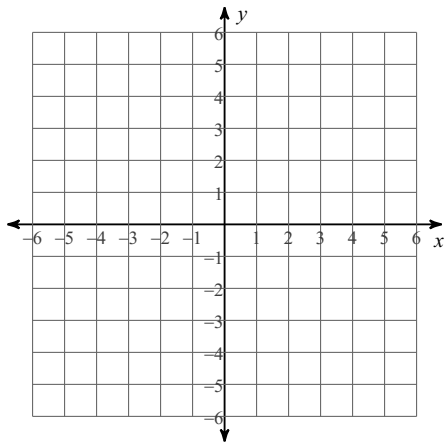
$$52) -\frac{2m^{-4} n^0 \cdot -2n^4}{(m^4)^4}$$

$$53) \left( -\frac{a^2}{ab^2 \cdot 2a^4 b^4} \right)^2$$

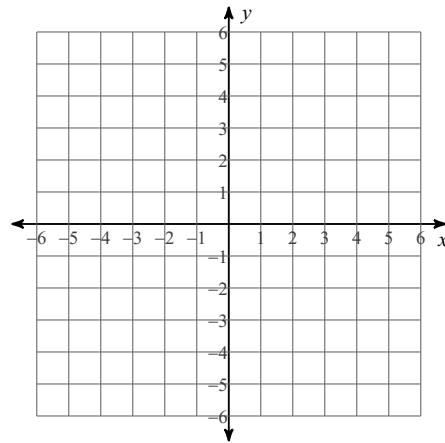
$$54) \frac{(-2yx^{-1} \cdot x^{-2})^3}{(-x^4)^3}$$

Sketch the graph of each line.

55)  $x = -3y + 9$

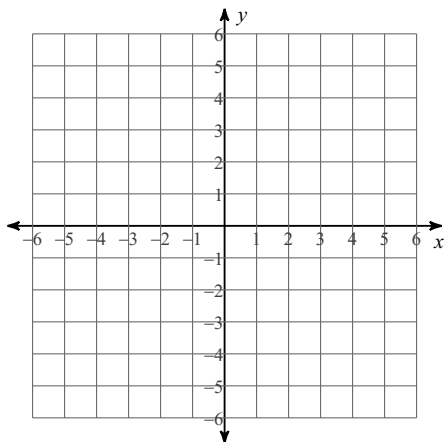


56)  $-3 + 2x = \frac{3}{5}y$

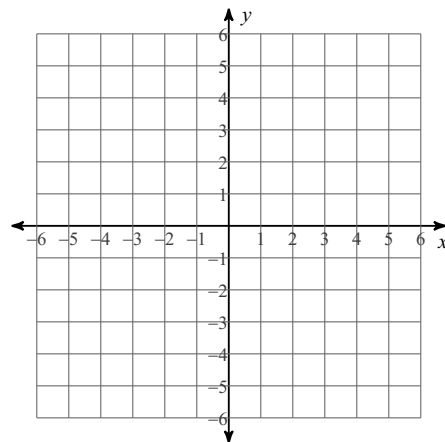


Sketch the graph of each linear inequality.

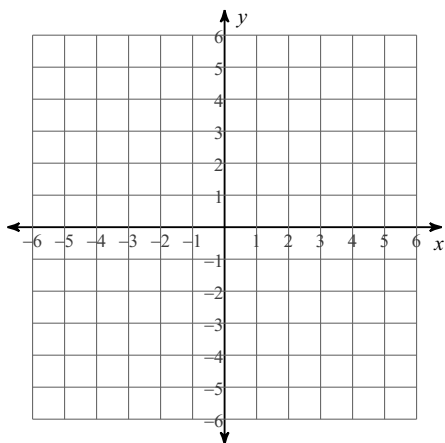
57)  $x - y \leq 2$



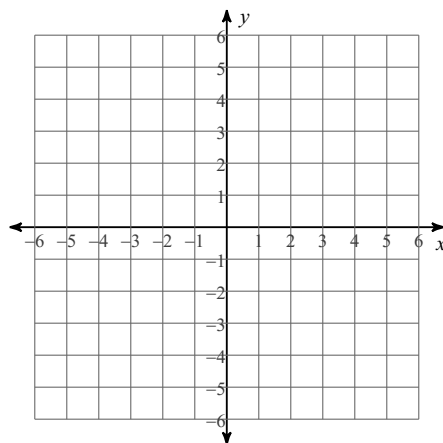
58)  $5x + 4y > 16$



59)  $7x - 3y > 6$



60)  $x + 3y \geq 0$



**Solve each system by graphing.**

61)  $y = -5x + 1$   
 $y = -x - 3$

62)  $y = -x + 1$   
 $y = \frac{1}{3}x - 3$

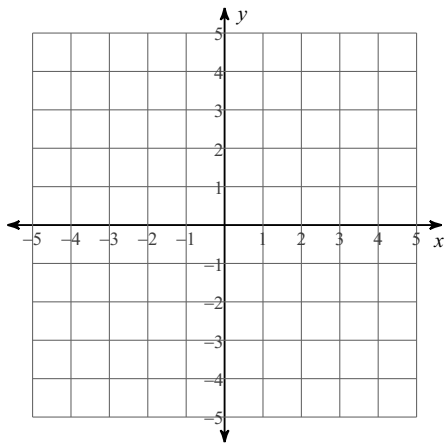
63)  $y = 3x - 3$   
 $y = \frac{1}{2}x + 2$

64)  $y = 5x + 2$   
 $y = 5x - 2$

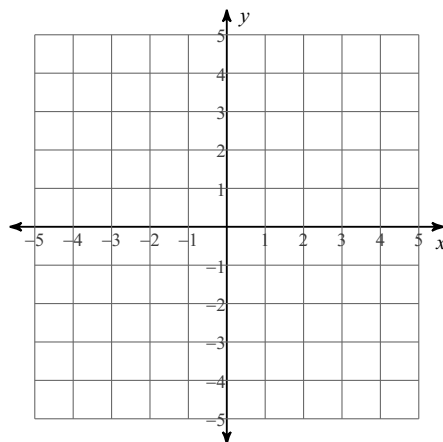
Sketch the solution to each system of inequalities.

65)  $y > -\frac{1}{3}x - 3$

$y \leq x + 1$

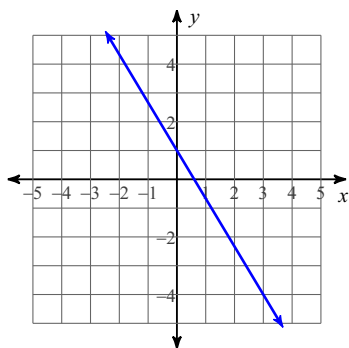


66)  $y \leq 3x + 1$   
 $y \leq 3x + 3$



Write the slope-intercept form of the equation of each line.

67)



Write the slope-intercept form of the equation of each line given the slope and y-intercept.

68) Slope =  $-2$ , y-intercept =  $3$

Write the slope-intercept form of the equation of each line.

69)  $9x + 8y = 40$

70)  $y + 1 = -\frac{1}{5}(x + 5)$

71)  $-y = 0$

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

72) through:  $(1, -1)$ , slope = 1

**Write the slope-intercept form of the equation of the line through the given points.**

73) through:  $(3, 3)$  and  $(-2, 1)$

**Write the slope-intercept form of the equation of the line described.**

74) through:  $(-3, 0)$ , parallel to  $x = 0$

75) through:  $(5, 5)$ , perp. to  $y = -x - 5$

**Find each product.**

76)  $(-6a - 3)(-3a - 8)$

77)  $(m + 2)(-m + 1)$

78)  $(5n^2 - 3n - 7)(-n^2 + 3n + 4)$

79)  $(-2v^2 - 4v + 2)(6v^2 - 4v + 8)$

80)  $(5x + 2)^2$

81)  $(3x - 1)(3x + 1)$

**Simplify.**

82)  $-5\sqrt{15}(-\sqrt{3} - 3\sqrt{2})$

83)  $3\sqrt{5}(\sqrt{5} + 3)$

84)  $\sqrt{15}(4 - \sqrt{10})$

85)  $3\sqrt{15}(\sqrt{3} + 5\sqrt{10})$

**Simplify each expression.**

86)  $\frac{7v^3 + 56v^2}{8} \cdot \frac{1}{v + 8}$

87)  $\frac{8r^2 + 32r}{8r} \cdot \frac{1}{r - 2}$

88)  $\frac{r - 1}{r - 7} \cdot \frac{r^2 - 9r + 14}{2 - r}$

89)  $\frac{n + 2}{n^2 - 6n - 16} \cdot \frac{n + 5}{7}$

90)  $\frac{6x + 48}{2x^2 - 4x - 16} \div \frac{6}{12x^3 + 24x^2}$

91)  $\frac{2x - 8}{10x^2 - 44x + 16} \div \frac{7x - 28}{50x^2 - 20x}$

**Solve each equation. Remember to check for extraneous solutions.**

$$92) \frac{1}{3k^2} = \frac{k+3}{3k^2} + \frac{1}{6k^2}$$

$$93) \frac{4}{5x} + \frac{1}{x^2} = \frac{x+4}{5x^2}$$

$$94) \frac{1}{n+2} - 1 = \frac{2}{n+2}$$

$$95) \frac{1}{x} - \frac{x-1}{x} = 1$$

$$96) \frac{1}{p-8} - (p-1) = \frac{7}{p-8}$$

$$97) 1 = \frac{v}{v-1} + \frac{1}{v-6}$$

**Simplify each and state the excluded values.**

$$98) \frac{6a-30}{a-5}$$

$$99) \frac{x+4}{4x+16}$$

$$100) \frac{10b-100}{b-10}$$

**Find the value of x or y so that the line through the points has the given slope.**

$$101) (1, 4) \text{ and } (x, -7); \text{ slope: } -\frac{11}{6}$$

$$102) (-6, y) \text{ and } (4, -2); \text{ slope: } \frac{3}{5}$$

$$103) \left(x, -2\frac{1}{3}\right) \text{ and } \left(0, -1\frac{1}{3}\right); \text{ slope: } \frac{1}{2}$$

$$104) \left(-3\frac{1}{2}, -\frac{3}{2}\right) \text{ and } \left(\frac{1}{2}, y\right); \text{ slope: } \frac{5}{8}$$

**Solve each system by elimination.**

$$105) \begin{aligned} 4x + 12y &= -16 \\ -8x + 6y &= -28 \end{aligned}$$

$$106) \begin{aligned} 8x - 3y &= 20 \\ -4x - 7y &= 24 \end{aligned}$$

**Solve each system by graphing.**

$$107) \begin{aligned} -1 - \frac{1}{7}y &= -\frac{11}{35}x \\ -35 + 5y + 3x &= 0 \end{aligned}$$

$$108) \begin{aligned} -3y &= -12 - 2x \\ 4x + 2y &= -8 \end{aligned}$$



**Solve each system by substitution.**

109)  $-4x - 2y = 2$   
 $-5x + y = -15$

110)  $3x + y = 12$   
 $-6x - 6y = -12$

111) A plane traveled 1044 miles to Lagos and back. The trip there was with the wind. It took 9 hours. The trip back was into the wind. The trip back took 18 hours. What is the speed of the plane in still air? What is the speed of the wind?

112) The sum of the digits of a certain two-digit number is 7. Reversing its digits decreases the number by 27. Find the number.

113) A boat traveled 90 miles downstream and back. The trip downstream took 5 hours. The trip back took 15 hours. What is the speed of the boat in still water? What is the speed of the current?

114) The sum of the digits of a certain two-digit number is 7. Reversing its digits decreases the number by 9. What is the number?

**Solve each system by substitution.**

115)  $2x + y = 10$   
 $4x - 2y = -4$

116)  $-6x - 6y = 0$   
 $5x + y = 8$

**Simplify each and state the excluded values.**

117)  $\frac{3k^2 - 24k + 21}{4k^2 - 14k - 98}$

118)  $\frac{9m^3 - 9m^2 - 54m}{2m^2 - 5m - 18}$

119)  $\frac{4b^2 + 8b - 12}{5b^2 + 23b + 24}$

120)  $\frac{27 + 12k - 7k^2}{6k^2 - 4k - 42}$