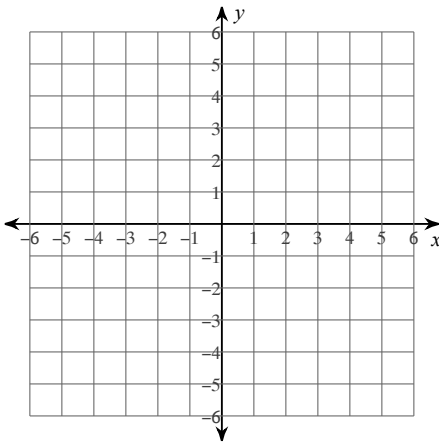


# Summer Work for HONORS GEOMETRY

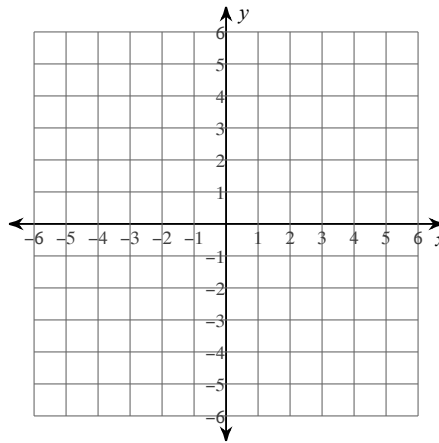
© 2021 Kuta Software LLC. All rights reserved.

Sketch the graph of each line. Show the coordinates of three different points on your line.

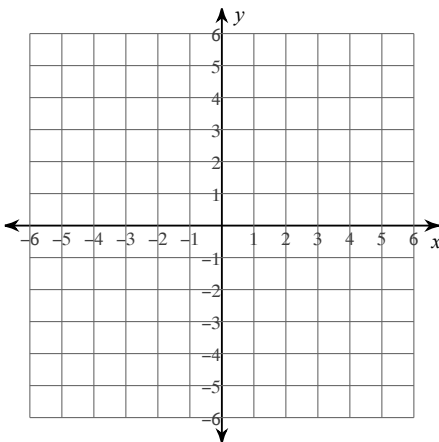
1)  $y = -\frac{4}{3}x - 4$



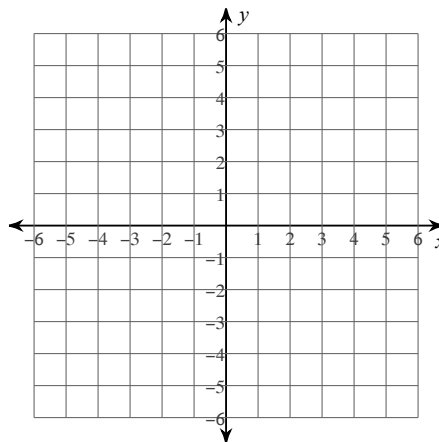
2)  $y = \frac{3}{5}x + 1$



3)  $7x - 5y = 20$

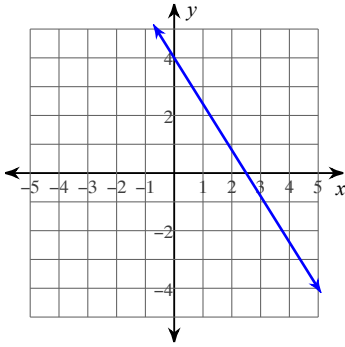


4)  $3x + 2y = 6$

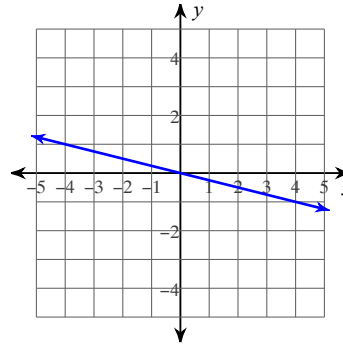


Write the slope-intercept form of the equation of each line.

5)



6)



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

7) through:  $(-2, -5)$ , slope =  $-\frac{4}{3}$

8) through:  $(-5, 2)$ , slope =  $-\frac{2}{9}$

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

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

10) through:  $(-3, 3)$  and  $(2, 4)$

**Solve each equation.**

$$11) 4(7x - 2) = -8(x - 8)$$

$$12) -(6 - 2x) = 8x - (-4 + 5x)$$

$$13) -3\left(-\frac{7}{2}n + \frac{9}{5}\right) + 2n = -\frac{679}{10}$$

$$14) -\frac{151}{2} = -5\left(\frac{17}{5}v + \frac{3}{2}\right)$$

**Solve each proportion. Express your answer as an improper fraction (if necessary)**

$$15) \frac{2}{x} = \frac{5}{x+7}$$

$$16) \frac{x+5}{x} = \frac{7}{3}$$

17)  $\frac{b+1}{5b-8} = -\frac{5}{7}$

18)  $\frac{2}{4} = \frac{5v+9}{3v-10}$

**Simplify the radical expression by finding a factor that is a perfect square.**

19)  $\sqrt{700}$

20)  $\sqrt{640}$

21)  $\sqrt{98}$

22)  $\sqrt{125}$

**Simplify. Use the distributive property to multiply the two binomials. Simplify all radicals and combine any like terms.**

23)  $-5\sqrt{10}(\sqrt{2} - 3\sqrt{10})$

24)  $-2\sqrt{15}(-2\sqrt{6} + \sqrt{10})$

25)  $(\sqrt{3} + \sqrt{5})^2$

26)  $(5\sqrt{2} + \sqrt{5})(\sqrt{3} + \sqrt{5})$

**Simplify.**

27)  $4\sqrt{28} - 5\sqrt{27} - 2\sqrt{7}$

28)  $-4\sqrt{3} - \sqrt{18} + 5\sqrt{27}$

**Find the midpoint of the line segment with the given endpoints.**

29)  $(-5, 5), (-10, 8)$

30)  $(-10, 2), (-5, 2)$

31)  $\left(-1\frac{1}{2}, 1\right), \left(0, -\frac{1}{4}\right)$

32)  $\left(3\frac{1}{4}, -\frac{2}{3}\right), \left(-2\frac{2}{9}, \frac{4}{3}\right)$

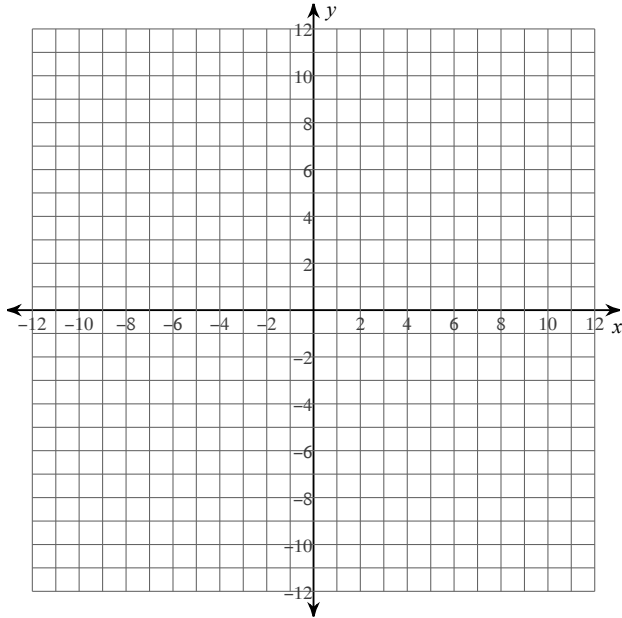
33) On the graph below, locate the following points:

A (6,-8) B (2, 10) C (-7, -3)

a) connect the three points with line segments to form a triangle

b) find the slope of each line segment in the triangle

c) find the midpoint of each line segment in the triangle



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

34) (7, 2) and (x, 5); slope: -1

35) (-7, 4) and (x, -8); slope: 6

36)  $\left(3, \frac{1}{3}\right)$  and  $(-1, y)$ ; slope: 0

37)  $\left(-\frac{3}{2}, 1\right)$  and  $\left(x, \frac{4}{3}\right)$ ; slope:  $\frac{1}{6}$

**Solve each system of equations by the method of substitution. Your answer should indicate the values for both x and y that make both equations valid.**

$$\begin{aligned} 38) \quad y &= -3x - 17 \\ y &= 8x + 16 \end{aligned}$$

$$\begin{aligned} 39) \quad y &= -5x - 19 \\ y &= -4x - 14 \end{aligned}$$

**Solve each system of equations by the method of substitution. Solve one of the equations for either one of the variables, then substitute into the second equation to create an equation with just one variable. Your answer should include values for both x and y that make both equations valid.**

$$\begin{aligned} 40) \quad -8x - 6y &= 18 \\ x - 5y &= -8 \end{aligned}$$

$$\begin{aligned} 41) \quad -3x - y &= -2 \\ 6x + y &= -4 \end{aligned}$$

**Solve each system of equations by the method of elimination.**

$$\begin{aligned} 42) \quad -4x - y &= 26 \\ -2x + y &= 28 \end{aligned}$$

$$\begin{aligned} 43) \quad 5x - y &= -22 \\ -5x + 6y &= 7 \end{aligned}$$

**Factor the quadratic expression. Always check first for a greatest common factor (GCF).**

44)  $4x^2 - 24x$

45)  $m^2 - 3m - 4$

46)  $n^2 - 5n - 14$

47)  $p^2 + p - 42$

48)  $3n^2 - 33n + 84$

49)  $b^2 - 10b + 21$

50)  $6r^2 - 96r + 360$

51)  $x^2 - 2x - 8$



$$52) 4m^2 - 1$$

$$53) 9b^2 - 25$$

**Solve each quadratic equation by factoring.**

$$54) x^2 + 2x - 35 = 0$$

$$55) k^2 + 3k = 0$$

$$56) 7n^2 - n - 8 = 0$$

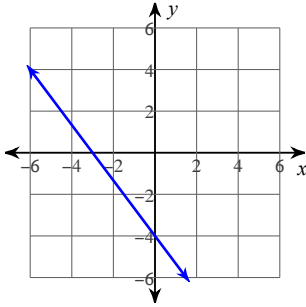
$$57) 3n^2 - 7n - 40 = 0$$

$$58) 7m^2 + 28m - 147 = 0$$

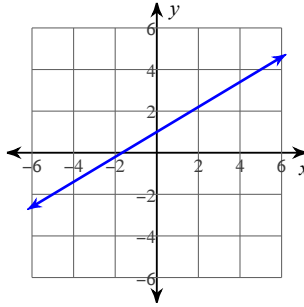
$$59) 5x^2 - 70x + 240 = 0$$

# Answers to Summer Work for HONORS GEOMETRY

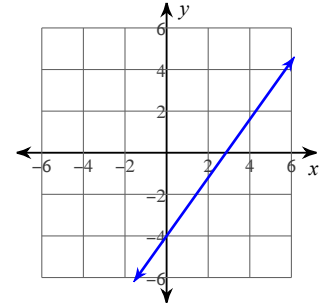
1)



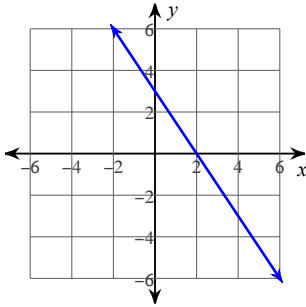
2)



3)



4)



5)  $y = -\frac{8}{5}x + 4$

6)  $y = -\frac{1}{4}x$

7)  $y = -\frac{4}{3}x - \frac{23}{3}$

8)  $y = -\frac{2}{9}x + \frac{8}{9}$

9)  $y = -\frac{1}{4}x + \frac{11}{4}$

10)  $y = \frac{1}{5}x + \frac{18}{5}$

11)  $\{2\}$

12)  $\{-10\}$

13)  $\{-5\}$

14)  $\{4\}$

15)  $\left\{\frac{14}{3}\right\}$

16)  $\left\{\frac{15}{4}\right\}$

17)  $\left\{\frac{33}{32}\right\}$

18)  $\{-4\}$

19)  $10\sqrt{7}$

20)  $8\sqrt{10}$

21)  $7\sqrt{2}$

22)  $5\sqrt{5}$

23)  $-10\sqrt{5} + 150$

24)  $12\sqrt{10} - 10\sqrt{6}$

25)  $8 + 2\sqrt{15}$

26)  $5\sqrt{6} + 5\sqrt{10} + \sqrt{15} + 5$

27)  $6\sqrt{7} - 15\sqrt{3}$

28)  $11\sqrt{3} - 3\sqrt{2}$

29)  $\left(-7\frac{1}{2}, 6\frac{1}{2}\right)$

30)  $\left(-7\frac{1}{2}, 2\right)$

31)  $\left(-\frac{3}{4}, \frac{3}{8}\right)$

32)  $\left(\frac{37}{72}, \frac{1}{3}\right)$

33)

34) 4

35) -9

36)  $\frac{1}{3}$

37)  $\frac{1}{2}$

38) (-3, -8)

39) (-5, 6)

40) (-3, 1)

41) (-2, 8)

42) (-9, 10)

43) (-5, -3)

44)  $4x(x - 6)$

45)  $(m - 4)(m + 1)$

46)  $(n + 2)(n - 7)$

47)  $(p - 6)(p + 7)$

48)  $3(n - 7)(n - 4)$

49)  $(b - 7)(b - 3)$

50)  $6(r - 6)(r - 10)$

51)  $(x - 4)(x + 2)$

52)  $(2m + 1)(2m - 1)$

53)  $(3b + 5)(3b - 5)$

54)  $\{-7, 5\}$

55)  $\{-3, 0\}$

56)  $\left\{\frac{8}{7}, -1\right\}$

57)  $\left\{-\frac{8}{3}, 5\right\}$

58)  $\{3, -7\}$

59)  $\{8, 6\}$