REQUIRED SUMMER WORK FOR
HONORS ALGEBRA II
Teacher – Mr. Yates

This summer work includes both review topics and some new topics. One of the goals of summer work is to have you practice and reinforce skills you already have; the other primary goal is to have you work independently to learn new skills. These goals are essential to honors students.

All problems are to be completed neatly, with answers in appropriate spaces. Appropriate work and/or explanation should be shown in the spaces provided.

If the difficulty of this work is overwhelming, you should consider a regular academic class rather than honors. In the academic classes, we will spend more class time on these topics rather than accelerating ahead to other things. If you are weak in any of your fundamental math skills or if your dedication to academics is not up to par, you will not fully benefit from taking an honors course.

If you have any questions, feel free to email me at *jyates@bloomsd.k12.pa.us*
Please type "summer honors work" in the subject line. I try to check my email at least once a week over the summer. Do not wait until the week before school to email me with a concern.

Have a good summer, and I will see you in August!

1. Evaluate: $(3-8)^2 \cdot 4 - 3$

1)_____

Simplify each expression using the distributive property and combining like terms.

2. $3(r-10s)+4(7s+2r)$ 3. $4c-2c^2-(4c+2c^2)$

2)_____

3)_____

Evaluate each expression if $a = \dfrac{3}{4}$, $b = -8$, $c = -2$, and $d = 3$.

4. $\dfrac{d(b-c)}{ac}$ 5. $ab^2 - d$

4)_____

5)_____

6-9: Solve each equation.

6. $9 + \dfrac{4}{3}n = -59$ 7. $-6 = \dfrac{4x+2}{7}$

6)_____

7)_____

8. $5(6-4v) = v + 21$ 9. $-4(6y-5) = 23 - 3(8y+1)$

8)_____

9)_____

10. Fourteen less than twice some number is 154. Find the number.

10)_____

11. In an evening, a sporting goods store sold twice as many t-shirts as shorts. T-shirts cost $9 each, and shorts cost $14 each. The total sales for both items was $256. Find the number sold of each.

11)_____

12. Rearrange the following equation to solve for y: $8x - 6y = 12$

12)_____

13. Rearrange the following equation to solve for n: $3x^2 - x + n = 4x^2 + 1$

13)_____

14. Rearrange the following equation to solve for x: $x + 3x + 12y = 42 - 2x$

14)_____

15. Solve and graph: $8x - 6 \geq 10$

15)_____

16-17: Solve each inequality. (no graph necessary)

16. $9(2r - 5) - 3 < 7r - 4$

17. $\dfrac{5x}{8} - \dfrac{3}{4} \geq \dfrac{1}{2}$

16)_____

17)_____

Solve each equation.

18. $|n - 4| = 13$

19. $-2|7 - 3y| - 6 = -14$

18)_____

19)_____

Solve each inequality and graph the solution on the number line.

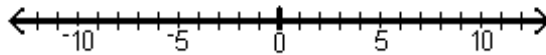20. $-8 \leq 3y - 20 \leq 52$

20)_____
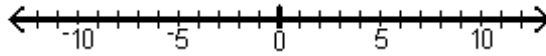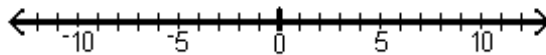

21. $3(5x - 2) < 24 \ or \ 6x - 4 > 9 + 5x$
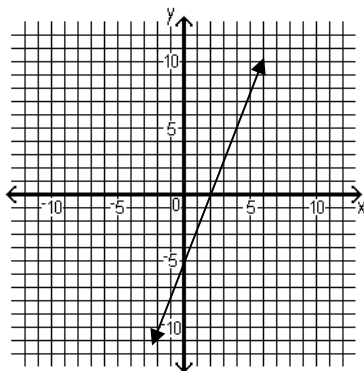
21)_____

22. $|2y + 5| + 6 < 9$
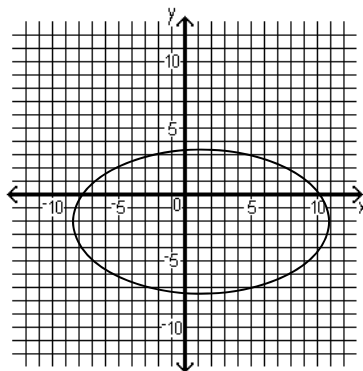
22)_____

23)_____

23. $\dfrac{|x + 2|}{3} \geq 5$

Use the *vertical line test* to determine if each relation is a function. (yes/no)

24)_____

24.

25.

25)_____

Find each value if $f(x) = \dfrac{4x+3}{x+2}$.

26) _____

26. $f(3)$ 27. $f\left(\dfrac{1}{2}\right)$ 28. $f(m-2)$

27) _____

28) _____

29. Find the *x-intercept* and *y-intercept* of $2x - y = 5$.
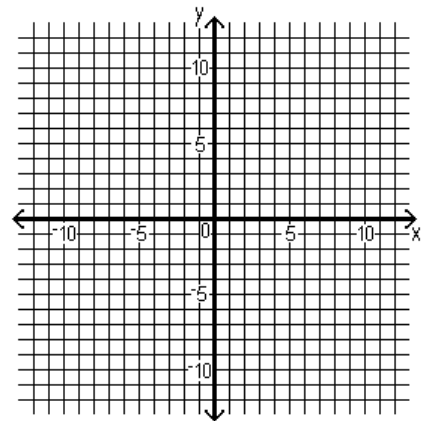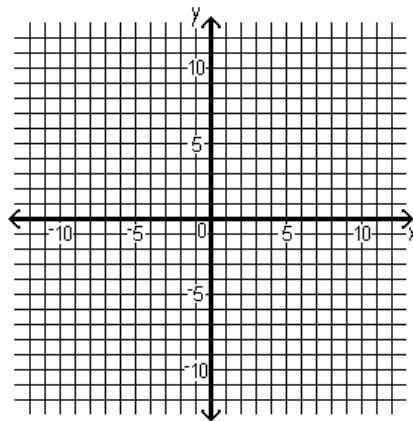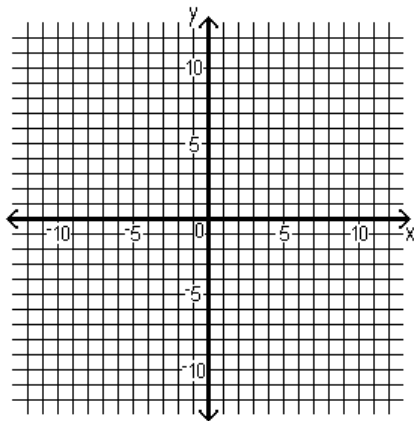
29) x int = _____

29) y int = _____

Graph each equation.

30. $y = 3x - 1$ 31. $f(x) = -2x + 3$ 32. $2x + 7y = 14$

33-34: Find the *slope* of the line that passes through each pair of points.

33. (1,-4) and (-5,2)   34. (-10,-3) and (7,2)

33) _____

35. Solve for *n* if the line through (5, 9) and (2, *n*) has a slope of 2.

34) _____

35) _____

36. The slope of every *horizontal* line is _____.

37. The slope of every *vertical* line is _____.

36) _____

38-41: Write an equation for the line that satisfies each given condition. ($y = mx + b$)

37) _____
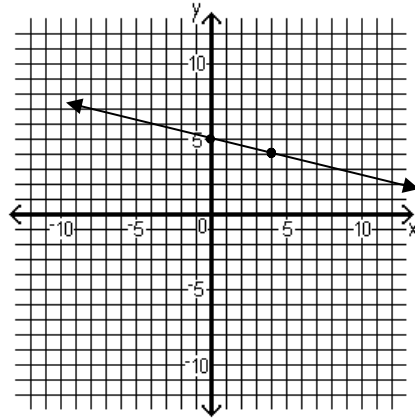
38. passes through the points (3,11) and (-6,5)

38) _____

39. passes through (-3, 5) and is parallel to $x + 3y = -6$ 39)_____

40. has *x*-intercept $= 3$ and *y*-intercept $= 2$ 40)_____

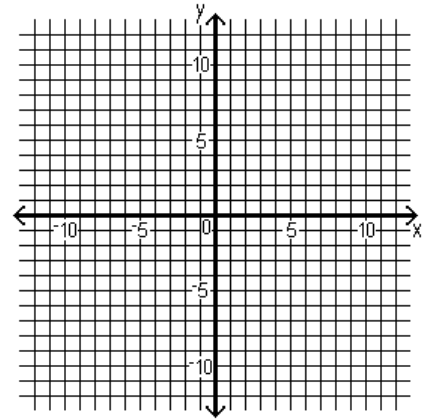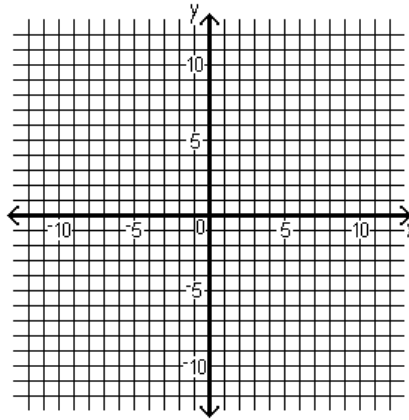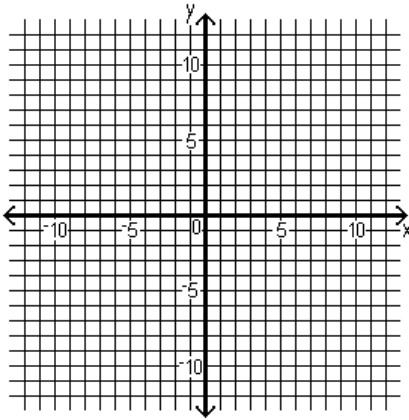41. line *l*   41)_____

Graph each inequality. (be sure to shade the proper region)

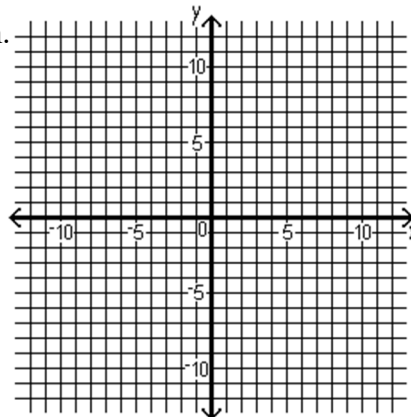46. $y < -4x - 2$ 47. $2x - y \geq 5$ 48. $x + 3y < 6$

49. Solve the system by graphing, identify the intersection.   49)_____

$$\begin{cases} 3x - y = 6 \\ y = -x + 6 \end{cases}$$

Solve each system of equations algebraically. (elimination or substitution)

50. $\begin{cases} 3x - 2y = 7 \\ y = -x + 4 \end{cases}$

51. $\begin{cases} 4x - 3y = 15 \\ y = -2x + 5 \end{cases}$

50)_____

51)_____

52. $\begin{cases} 3x + 4y = 8 \\ -3x - 4y = 10 \end{cases}$

53. $\begin{cases} 3x - 2y = -9 \\ 4x + 5y = 11 \end{cases}$

52)_____

53)_____

Simplify

54. $4n^5v^3 - n^5v^3 + 3n^5v^3$

55. $3y^7 \cdot 2y^3 \cdot 5y^2$

54)_____

55)_____

56. $(k^4)^3$

57. $(2x^4y^2z)^3$

56)_____

58. $(3a^4c^2)^3(-3ac^3)^2$

59. $\dfrac{18m^8n^6}{-9mn^7}$

57)_____

58)_____

60. $\left(\dfrac{3}{2}x^2y^3\right)\left(-\dfrac{4}{3}x^5y^2\right)\left(-\dfrac{5}{6}x^3y\right)$

61. $(-5m^2)(2p^3m^2) - (-p^2)(12pm^4)$

59)_____

60)_____

62. $\dfrac{(3x^{-2}y^3)(5x^4y^{-8})}{(x^{-3})^4y^{-2}}$

61)_____

62)_____

Simplify

63. $5a(7a^2b + 6ac^2 - 8a^3d)$

64. $2x(x+5) - x^2(3-x)$

63)_____

64)_____

65. $(2r+7)^2$

66. $(3c+4)(c^2 - 3c)$

65)_____

66)_____

Factor completely. (GCF, Difference of Squares, Trinomial methods may be involved)

67. $35x^3y^4 - 60x^4y$

68. $2m^2 - 98$

67)_____

69. $x^2 + 9x + 18$

70. $n^2 + 8n - 20$

68)_____

69)_____

71. $y^2 - 2y + 1$

70)_____

71)_____

Section 5.5: Radicals

72-74: Simplify.

72. $\sqrt{225}$

73. $\sqrt{\dfrac{4}{64}}$

72)_____

73)_____

74. $\sqrt{147}$

75. $\sqrt{8x^2y^6}$

74)_____

75)_____

76. $2\sqrt{3} \cdot \sqrt{30}$

77. $2\sqrt{12} - \sqrt{48} + 3\sqrt{27}$

76)_____

77)_____

78. Change to a decimal value rounded to thousandths: $\dfrac{12 + \sqrt{20}}{2}$

78)_____