**Summer Packet 2022**
**Geometry Honors GBHS** **Name:** _____
**Duffy**

Completion of this review packet will be the first required grade for all Geometry Honors' students.

**Simplify, leave answers exact.**

1. $12 \div 2(1 + 2)$ _____

2. $2[3 - (8)2^3 + 4(6 - 2)]$ _____

3. $\frac{1000^0}{(5-6)^3}$ _____

4. $\frac{2}{3} - \frac{31}{5}$ _____

5. $\frac{2}{3} \div \frac{11}{30}$ _____

6. $\sqrt{(10-4)^2 + (-7-1)^2}$ _____

**Solve each equation. Show all work.**

7. $5g + 8 = 3 + 2(3g - 4)$ g = _____

8. $-5(2b - 3) = 7(3 - b)$ b = _____

9. $\frac{h}{12} = \frac{8}{5}$ h = _____

10. $\frac{s-3}{s+3} = \frac{s}{s+5}$ s = _____

**Working with linear equations. Show all necessary work.**

11. Write the equation of the line in slope-intercept form that passes through (10, 21) and (15, 36)

_____

12. Write in point-slope form, slope-intercept form, and standard form an equation that passes through (- 1, 2) with slope 4.

_____

_____ _____

13. Determine whether $y = 4x + 5$ and $y = \frac{1}{4}x - 2$ are perpendicular.

_____

14. Write the equation of the line in slope-intercept form that is parallel to the line y = - 4x + 2 and passes through (2, -4) _____

15. Where do the lines y = 5 and x = -7 intersect? _____

**Solve each word problem.**

16. The number 312.8 is 34% of x. What is the value of x rounded to the nearest whole number?

_____

17. Five times one number added to another number is 32. Three times the first number minus the other number is 8. Find the numbers. _____ _____

18. Sean bought a pen and received change of $4.75 in 25 coins, all dimes and quarters. How many of each kind did he receive?
dimes _____
quarters _____

19. The graphs of 2x + 3y = 5 and 3x + y = 18 contain two sides of a triangle. A vertex of the triangle is at the intersection of the graphs. What are the coordinates of the vertex?

_____

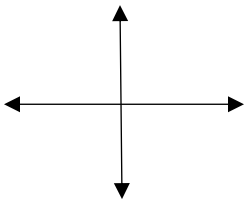
**Graph each.**

20. Graph each, then find the slope and y-intercept:

a. y = x – 4

slope _____

y-int _____

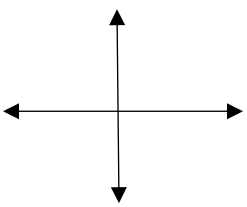


b. 5x + 10y = 20

_____

slope _____

y-int _____

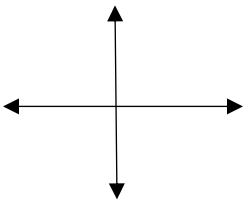


c. y = -21

_____

slope _____

y-int _____

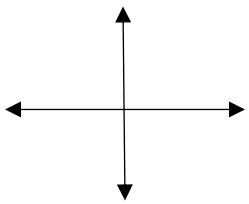


d. x + 5 = 0

_____

slope _____

y-int _____



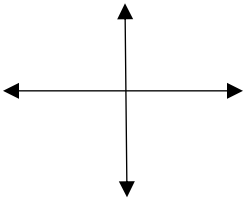
21. Graph each quadratic, find the axis of symmetry, vertex and zeros.

a. $y = x^2 + 2x - 15$

axis _____

vertex _____

zeros _____

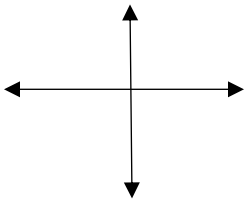


b. $y = x^2 - 9$

axis _____

vertex _____

zeros _____

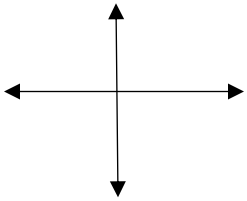


c. $y = -3x^2 - 12x - 12$

axis _____

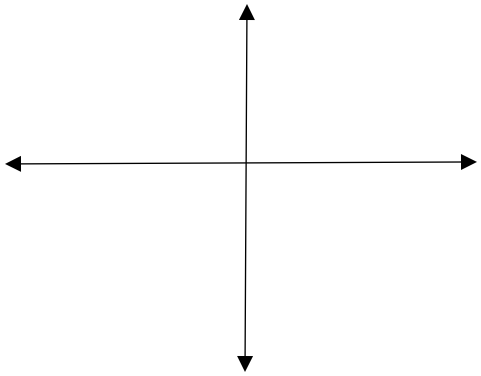
vertex _____

zeros _____



22. Solve the system of inequalities by graphing: $y > x + 2$

$y \leq -2x - 1$



23. Solve each system of equations:

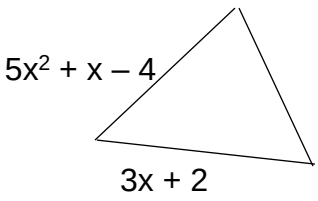
a. $x = 2y - 1$

$3x + y = 11$ _____

b. $5x - y = 17$

$3x - y = 13$ _____

24. The measures of two sides of a triangle are given. If P is the perimeter, find the measure of the third side. $P = 8x^2 + 4x - 1$




_____

**Simplify each**

25. $(5x)^o$ _____

26. $(3a^2b^5)(-2ab^3)$ _____

27. $(-3x^4yz^5)^3$ _____

28. $4a^4b^8 + 2(ab^2)^4 + 4(a^2b^4)^2$ _____

29. $\frac{4a^{-3}d^2}{8a^2d^{-5}}$ _____

30. $\frac{(3r^3t^5)^3}{(-3r^2t^7)^2}$ _____

**Find each product.**

31. $3x^2y(2x^2y - 5xy^2 + 8y^3x^2)$ _____

32. $(2n + 3)(3n^2 - 4n + 1)$ _____

33. $(5y + 6)^2$ _____

34. $(y + 2)^3$ _____

**Factor each polynomial. If it cannot be factored, write *prime*.**

35. $10x^2yz - 22x^3y^2z$ _____

36. $2xy - 4x + 3y - 6$ _____

37. $m^2 + 12m - 28$ _____

38. $5t^2 + 17t - 12$ _____

39. $6p^2 - 20p + 16$ _____

40. $49a^2 - 169$ _____

41. $x^4 - 81$ _____

42. $3x^5 - 75x^3$ _____

43. $81c^2 + 72c + 16$ _____

44. $25x^2 + 70x - 49$ _____

**Simplify each, factor when necessary.**

45. $\dfrac{8(x + 3)(x - 7)(x - 8)}{2(x - 7)(x + 3)(8 - x)}$ _____

46. $\dfrac{x^2 - 4}{x^2 + 4x + 4}$ _____

47. $\dfrac{5x^2 - 80}{10x^2 - 20x - 80}$ _____

48. $\dfrac{15x + 30}{5x^2 - 5x - 10} \div \dfrac{x^2 + 5x + 6}{x^2 + x - 6}$ _____

**Solve each equation, check your solutions.**

49. $12b^2 - 8b = 0$ _____

50. $y^2 + 4y = 45$ _____

51. $9n^2 + 6n = 3$ _____

**Solve each equation by using the Quadratic Formula x = $\frac{-b\pm\sqrt{b^2-4ac}}{2a}$. Simplify any radical.**

**Do not round.**

52. $12x^2 + x - 6 = 0$ _____

53. $x^2 - 14x = 22$ _____

54. $15n^2 - 3 = 4n$ _____

**Simplify each expression.**

55. $\sqrt{81}$

56. $\sqrt{80}$

57. $\sqrt{50x^3y^2}$ _____

58. $\frac{\sqrt{2}}{\sqrt{5}}$ _____

59. $2\sqrt{24} + \sqrt{54} + 3\sqrt{150}$ _____

60. $(\sqrt{11} - \sqrt{6})(\sqrt{2} + \sqrt{33})$ _____

61. $(6 - \sqrt{3})^2$ _____

62. $(2 - \sqrt{7})(2 + \sqrt{7})$ _____

63. $\sqrt[3]{125}$ _____

This packet is due as a grade the **first day** of geometry honors. Be prepared to test your knowledge on ALL of this material the first week of school.