



FELLOWSHIP
CHRISTIAN SCHOOL
COLOSSIANS 1: 9-12

Entering

Geometry

&

Honors Geometry

Summer Math Packet

Students,

This packet is to be completed by the first day of school and will be used as a study guide for the first assessment in the course. Please show all steps when working through the packet.

It is a mistake to do this packet at the beginning of the summer. We want these techniques to be relatively fresh in your mind in the fall. If you work a couple of problems a day, the whole packet will be completed in no time.

As math department, we hope you take this seriously, as we sincerely wish for you to be successful throughout this next year. Your preparation over the summer will be rewarded in unexpected ways during the year.

Here are some helpful websites to use, if needed:

- www.khanacademy.org
- www.patrickjmt.com
- www.youtube.com to find specific math related topics with accompanying videos

Sincerely,

Fellowship Math Department

DIRECTIONS: Be sure you have read the cover page CAREFULLY. Remember... **SHOW ALL WORK FOR CREDIT** in the spaces provided. Be sure to put your answers in the blanks, whenever possible.

Evaluate.

_____ 1. $(x-4)+6$ for $x=10$

_____ 2. $(y-2)^2+(y+5)^2$ for $y=-3$

_____ 3. $(x-y)^2+2(x+y)$ for $x=9$ and $y=-2$

Simplify. Reduce fractions to simplest form.

_____ 4. $-11.5+1.6+(-5.2)+0.7$

_____ 5. $-\frac{1}{6}-5+\frac{2}{5}-\frac{1}{15}$

_____ 6. $(-6)(7)$

_____ 7. $(-5.3)(2.1)$

_____ 8. $-\frac{1}{3} \div \frac{1}{15}$

_____ 9. $-\frac{2}{9} \div -\frac{2}{3}$

_____ 10. $\left(-\frac{2}{3}\right)\left(\frac{1}{5}\right)-\left(\frac{7}{15} \div \frac{28}{3}\right)$

_____ 11. What percent of 75 is 5?

_____ 12. 150 is what percent of 750?

For #13-18, solve for x or y.

_____ 13. $5x - 12 = 48$

_____ 14. $0.4x - 1.6 = 2.4x$

_____ 15. $\frac{-1}{2}y = 4$

_____ 16. $y - 6 < 10$

_____ 17. $8y - 3 > 2y + 15$

_____ 18. $23 - 7x \geq 3x \geq -7$

_____ 19. Two fifths of the automobiles entering the city every morning will be parked in city parking lots. These cars fill 5282 parking spaces. How many cars enter the city each morning?

_____ 20. A rectangular wading pool is 4.5 meters wide. What length will make the area 54 meters squared?

Simplify completely.

_____ 21. $a^3 \bullet a^2$

_____ 22. $(-2x)(5x^2)$

_____ 23. $\frac{5m^7}{m^3}$

_____ 24. $\frac{-10x^5}{2x^2}$

_____ 25. $\frac{-27x^2y^3}{3xy}$

_____ 26. $\frac{(2x^5y^3)^2}{(6x)^3}$

_____ 27. $-4x^2y^3z^5(2xy^2 - z)$ (Hint: Be Sure to use the distributive property!)

_____ 28. $-50a^2bc \div 2.5a^3c$

_____ 29. $23a^2 - 17a - 3a^2 - a + 5$

_____ 30. $(3m^2 - 9) + (5m^3 - 2m^2 + 1)$

_____ 31. $(-5a^2 - 2a) - (a^2 - 7a) + 2$

_____ 32. $(-7a^3 - 2a^2 + 5) + (-5a^4 + 3a^3 - 6a^2 - 1)$

_____ 33. $(2b - 1)(2b + 1)$

_____ 34. $(a-3)^2$

_____ 35. $(2m-6)^2$

Factor completely. (Hint: For #36, 38, & 39, take out a common factor first, and then factor again.)

_____ 36. $m^5 - m^3$

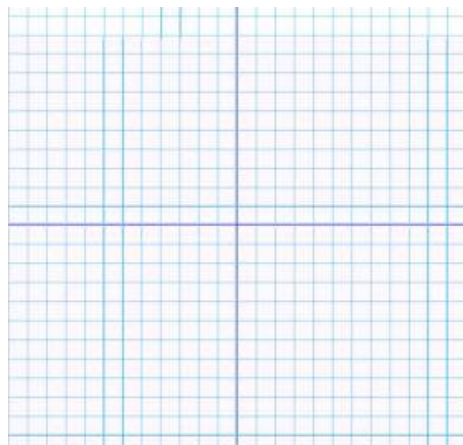
_____ 37. $49x^2 - 64$

_____ 38. $x^3 - 50x^2 + 625x$

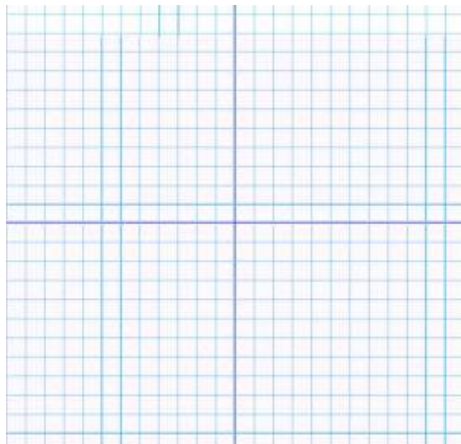
_____ 39. $30x^4 + 21x^3 - 36x^2$

Graph.

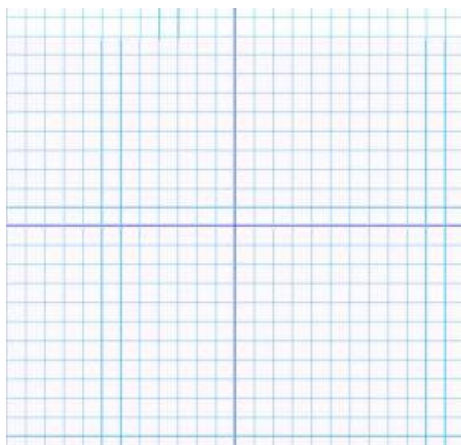
40. $2x + 4y = 4$



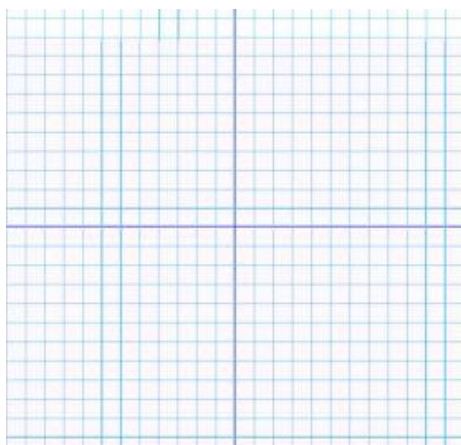
41. Graph $x = -3$



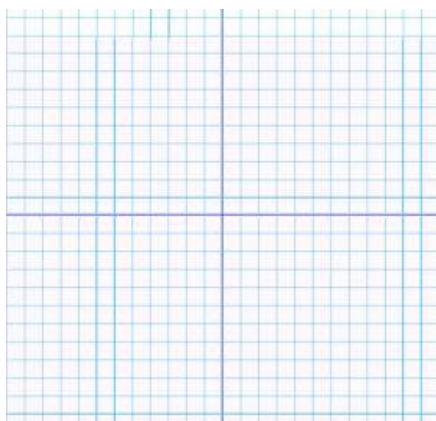
42. Graph $y = 2$



43. Graph $y = 2x - 5$



44. Graph $y = -\frac{1}{2}x + 3$



Find the slope and y-intercept of each line.

_____ 45. $y = \frac{1}{2}x - 6$

_____ 46. $2y = -6x + 4$

_____ 47. $5x - 10y = 250$

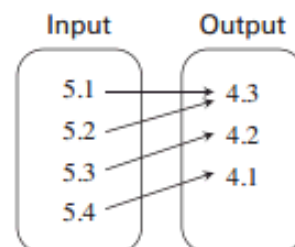
_____ 48. $3y - 5x - 2 = 0$

Tell whether the pairing is a function. If it is a function, identify the domain and range.

_____ 49.

Input	Output
7	4
2	2
5	1
3	5

_____ 50.



_____ 51.	Input	Output
	25	14
_____ 52.	30	13
	30	12
	35	11

Is (4,2) a solution to this system of equations? Show your work!

$$x + y = 6 \text{ and } 2x - y = 6$$

_____ 53. Is (1,2) a solution to this system of equations? Show your work!

$$3y = -6 \text{ and } y = -2x + 1$$

Solve each system of equations. You may use either substitution or elimination.

_____ 54. $y = x - 10$ and $5y + 10x = 10$

_____ 55. $2x - 3y = 10$ and $-3x + y = 20$

_____ 56. $2x = 3y + 12$ and $2x - 5y = 8$

_____ 57. The difference of two numbers is 10. Two times the larger number is 20 more than the smaller.

What are the two numbers?

Solve each quadratic equation by factoring OR by using the quadratic formula. Show all work!

_____ 58. $s^2 + 10s = 0$

_____ 59. $w^2 - 169 = 0$

_____ 60. $2x^2 - 11x + 15 = 0$

_____ 61. $x^2 + 16 = 8x$

Simplify completely. Assume variables are nonnegative. Leave answers in simplified radical form.

_____ 62. $-\sqrt{64a^6}$

_____ 63. $\sqrt{48x^3y^4}$

_____ 64. $\sqrt{(x+3)^2}$

_____ 65. $\sqrt{3xy} \cdot \sqrt{4x^3y}$

_____ 66. $\sqrt{6}(\sqrt{10} + \sqrt{15})$

_____ 67. $(2 - 2\sqrt{5})^2$

Rationalize and simplify completely.

_____ 68. $\sqrt{\frac{1}{5}}$

_____ 69. $\frac{\sqrt{5}}{\sqrt{10}}$

_____ 70. $\sqrt{\frac{x^2}{12}}$

_____ 71. The grasshopper population in Georgia is currently 4,000. It's growing by 2.3% each year. Write an equation that models the situation

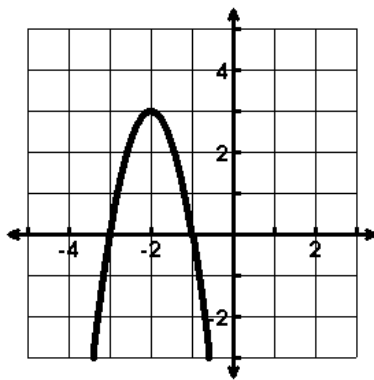
a) _____

What is the grasshopper population after 3 years?

b) _____

_____ 72. What is the asymptote of the exponential function $y = -\frac{2}{3} \cdot 2^x + 5$

73.



- Vertex: _____
- Axis of Sym.: _____
- Domain: _____
- Range: _____
- Increase: _____
- Decrease: _____
- End Behavior: $x \rightarrow \infty, y \rightarrow$ _____ $x \rightarrow -\infty, y \rightarrow$ _____

74. Write the quadratic equation of the graph in vertex form $y = (x-h)^2 + k$ that has shifted down 1, moved left 6, and shrunk by a factor of $\frac{1}{2}$: _____

75. Change the equation from standard to vertex form $y = -3x^2 + 6x - 2$