

ALGEBRA 2

Math Maintenance Assignment

Welcome to Algebra 2! In order to ensure success in this course, this is a mandatory summer assignment packet. This packet is due on the first day of your math class whether it occurs in the first or second semester. While it is best to not put the assignment off to the last minute, you want to complete the assignment close enough to the start of your course so that the ideas are fresh. There will be an assessment on this material the first week of class, after the packet has been reviewed.

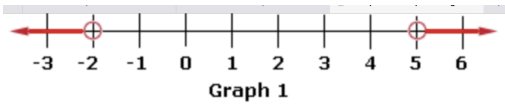
All topics in this assignment should be a review. You should not only be familiar with the topics but you should also know them well enough to be tested on them. This is material that will not be taught in the course. It is expected that you come in with a strong understanding of these topics. If you are unsure of how to do these problems, feel free to seek help with them. There are many websites with helpful videos including Khan Academy, YouTube, MathisFun.com, PurpleMath.com, Shmoop.com, and Algebrahelp.com.

Give us your best work while giving yourself the opportunity to get off to a great start! We look forward to having you in class!!

Sincerely,

The Math Department

Please show all work (preferably on the page) and do as much as you can without a calculator. Unless you are told to round, give exact values. For example, give $\frac{4}{3}$ instead of 1.33



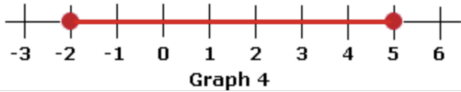
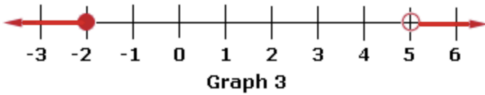
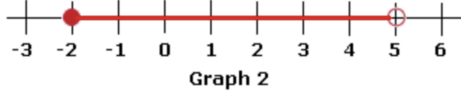
Write the inequality represented by the graph on the number line to the left.

1. Graph 1

2. Graph 2

3. Graph 3

4. Graph 4



Evaluate the expression without using a calculator.

5. -5^2

6. $\frac{2}{9} \times \frac{3}{8}$

7. $\frac{2}{7} + \frac{3}{5}$

8. $\frac{2}{7} \div \frac{3}{5}$

9. Simplify the expression

$$8(n - 3n^2) - 2(5 - 6n)$$

Solve for the designated variable.

10. $A = \frac{1}{2}bh$, for b

11. $5x - 7y = 10$ for y

Solve for each equation *algebraically*. Give your answer as an exact value.

12. $\frac{1}{2}x + \frac{4}{5} = \frac{5}{6}x + \frac{1}{45}$

13. $1.7(g + 5) = 2.1g + 9.7$

14. $\frac{1}{2}|x + 3| - 5 = 1$

15. $-7 + 3n + 11 = 6n + 5 - 3n$

16. $6b + 5 - 2b = 4 + 4b + 1$

Solve the inequality. Then, graph your solution on a number line.

17. $-4r + 7 < 3$

18. $-8 \leq 5y + 2 \leq 37$

19. $3|x - 5| + 2 > 1$

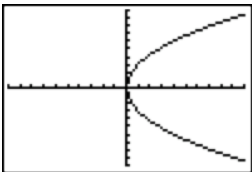
A function is a relationship that pairs each input value with exactly one output value. Tell whether the relation is a function.

20.

x	y
-2	8
-1	2
0	0
1	2

21. $y = 3x - 5$

22.



23. $(-4, 3), (-2, 1), (0, 3), (1, -2),$ and $(-2, -4)$

Also, give the domain and range for #23

24. Evaluate the function $f(x) = x^2 - x + 3$ for $f(-4)$.

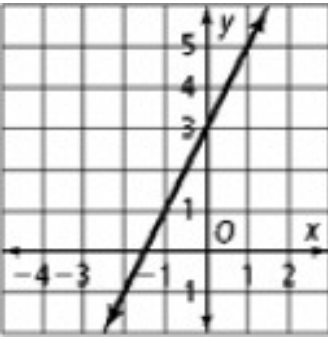
Write the equation of the line, in the given format, with the given information

25. passes through the points (5, -2) and (2, 10)

26.

x	1	2	3	4
y	45	30	15	0

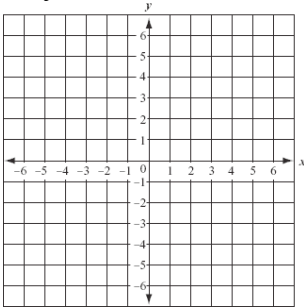
27.



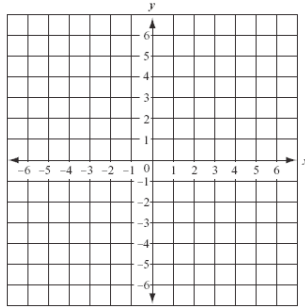
	Point-slope form	Slope-intercept form	Standard form
25			
26			
27			

Graph the inequality.

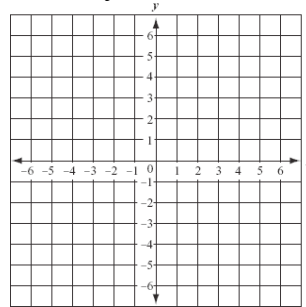
28. $y < 4$



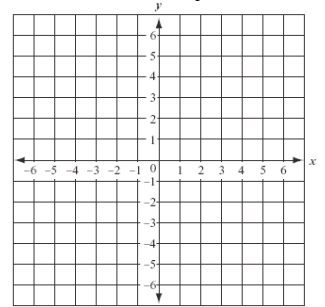
29. $x \geq -2$



30. $y > 3x + 1$



31. $3x - 4y \geq 8$



Solve the system of equations algebraically. If there is a single solution, give the solution as an ordered pair. Use exact values.

32. $2x - y = 1$
 $x - 2y = -10$

33. $3x - 7y = 10$
 $6x - 8y = 8$

34. Your friend has 22 coins in nickels, dimes and quarters. She has 4 times as many dimes as quarters, and she has a total of \$2.30. Set up a system of equations that can be used to determine how many of each coin she has. (You do not need to solve the system of equations.)

Simplify the expression.

35. 2^0

36. $\frac{-2e^2f^7}{6e^3f^{-1}}$

37. $\left(\frac{7x^4}{3y^5}\right)^2$

38. $\sqrt{12}$

39. $\sqrt{72}$

40. $\sqrt{3} \times \sqrt{15}$

41. $\sqrt{\frac{1}{4}}$

Perform the indicated operation.

41. $(2x^3 - 5x^2 + 3x - 9) + (x^3 + 6x^2 + 11)$

43. $(8x^3 - x^2 - 5x + 1) - (3x^3 + 2x^2x + 7)$

44. $(m^2 + 6)(m - 3)$

45. $(d - 5)^2$

46. $(3w - 2)(w^2 + 4w - 5)$

Solve by the indicated method. Give your solutions as exact values in simplified form.

47. by taking square roots
 $-p^2 - 12 = -87$

48. by the quadratic formula
 $4x^2 - 8x = -1$

49. by factoring
 $6z^2 - 13z - 5 = 0$

* The quadratic formula, for quadratic equations in the form $ax^2 + bx + c = 0$, is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Factor to simplify the expression. State any restrictions on the variables (any value that x cannot equal or it would cause the denominator to be zero).

50. $\frac{3x^2 - 10x + 8}{x^2 - 4}$

51. $\frac{4x^3 + 20x^2 - 24x}{2x^2 - 2x^3}$