Algebra II Name:_____

Summer Assignment Date:_____

Hour:_____

Directions: **Show all work for full credit. Circle your final answer.**
This assignment is due the first day of school.
Use the summer assignment glossary to look up any words in which you need clarification.

Summer Assignment Glossary

Absolute Value The distance the number is from 0 on a number line

Elimination Method A method of solving a system of equations by multiplying equations by constants, then adding the revised equations to eliminate a variable

Equation A statement in which two expressions are equivalent

Expression A collection of number, operations, variables, and grouping symbols

Order of Operations A procedure of evaluating an expression involving more than one operation.
"Please Excuse My Dear Aunt Sally"
P – Parenthesis
E – Exponents
M – Multiplication
D – Division
A – Addition
S – Subtraction

Slope-intercept Form A linear equation written in the form $y = mx + b$ where m is the slope and b is the y-intercept of the equation's graph

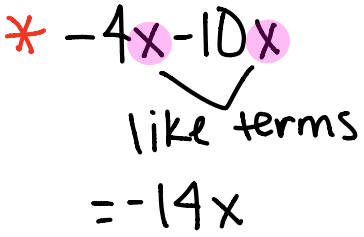
Substitution Method A method of solving a system of equations by solving one of the equations for one of the variables and then substituting the resulting expression in other equations

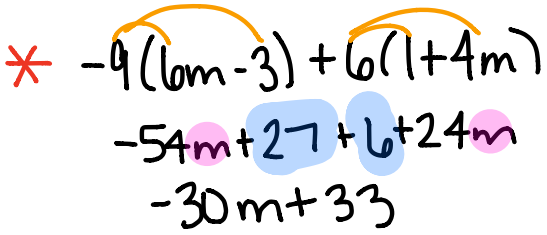
Variable A symbol, usually a letter, that is used to represent one or more numbers in an algebraic expression

SIMPLIFYING EXPRESSIONS

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):





Simplify.

1. $n - 10 + 9n - 3$
2. $x - 4 - 9$
3. $-y - 10y$
4. $-6k + 7k$
5. $12r + 2 + 3r - 5$
6. $-16n - 14n$
7. $9a + 10(6a - 1)$
8. $-2m - (9 - 10m)$
9. $5(-2n + 4) + 2(n + 3)$
10. $-3(10b + 10) + 5(b + 2)$

SOLVING EQUATIONS

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):

* $x - 3 = 15$
$+3 \quad +3$
$x = 18$

* $-9x + 1 = -80$
$-1 \quad -1$
$\frac{-9x}{-9} = \frac{-81}{-9}$
$x = 9$

* $\frac{2r}{6} - 4 = 2$
$+4 \quad +4$
$6 \cdot \frac{2r}{6} = 6 \cdot 6$
$\frac{2r}{2} = \frac{36}{2}$
$r = 18$

Solve each equation.

11. $x + 9 = -6$

12. $5x - 7 = 3$

13. $2(x - 1) = -3$

14. $-1 = \frac{5+x}{6}$

15. $a + 5 = -5a + 5$

16. $-3(4x + 3) + 4(6x + 1) = 43$

INEQUALITIES

Show all work for full credit. A calculator is not permitted for this section of problems.

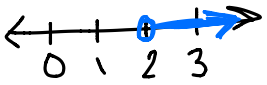
Example(s):

$4x + 2 > 10$

$-2 \quad -2$

$\frac{4x}{4} > \frac{8}{4}$

$x > 2$

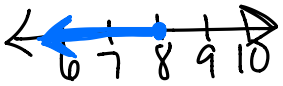


$\frac{n}{2} + 1 \leq 5$

$-1 \quad -1$

$2 \cdot \frac{n}{2} \leq 4 \cdot 2$

$n \leq 8$



Solve each inequality and graph.

17. $4 + x > 3$

18. $2x + 4 \geq 24$

19. $4x + 2 > 10$

20. $\frac{m}{3} - 3 \leq -6$

21. $-4(3 + n) > 32$

22. $\frac{-8+r}{2} > -8$

ABSOLUTE VALUES

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):

$*|3x-4|=5$

$3x-4=5$ $\quad +4\ +4$

$\frac{3x}{3}=\frac{9}{3}$

$x=3$

$3x-4=-5$ $\quad +4\ +4$

$\frac{3x}{3}=\frac{-1}{3}$

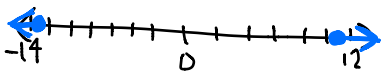
$x=-\frac{1}{3}$

$*\frac{|n+1|}{2}\geq 6 \cdot 2$

$|n+1|\geq 12$

$n+1\leq -12$ $\quad -1\ -1$ or $n+1\geq 12$ $\quad -1\ -1$

$n\leq -13$ or $n\geq 11$

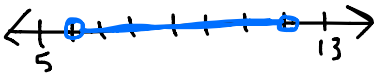


$*\frac{|a-9|}{3}<1 \cdot 3$

$|a-9|<3$

$-3<a-9<3$ $\quad +9\ \ +9\ +9$

$6<a<12$



Solve each equation or inequality. Graph the solution to the inequalities.

23. $|m|=7$

24. $|7+p|=7$

25. $|-8n|<32$

26. $|n|+4<12$

27. $\left|\frac{n}{4}\right|<12$

28. $\frac{|x-4|}{5}\leq 2$

LINEAR EQUATIONS

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):

* Write the equation of the line that passes through $(9, 3), (19, -17)$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-17-3}{19-9} = \frac{-20}{10} = -2$

$y = -2x + b$

$3 = -2(9) + b$

$3 = -18 + b$

$+18 \quad +18$

$21 = b$

$y = -2x + 21$

* Find the slope and y-intercept of the equation.

$3x + 4y = 16$

$-3x \qquad -3x$

$\frac{4y}{4} = \frac{-3x + 16}{4}$

$y = \frac{-3}{4}x + 4$

slope: $\frac{-3}{4}$

y-int: 4

Write the equation of the line that passes through each pair of points.

29. $(3, -20), (5, 8)$

30. $(6, -12), (15, -3$

Find the slope and the y-intercept of the equation.

31. $3y + 4x = 6$

32. $5x - 2y = 18$

33. $2y + 14 = 0$

34. $4x - 6y + 8 = 0$

GRAPHING LINEAR EQUATIONS

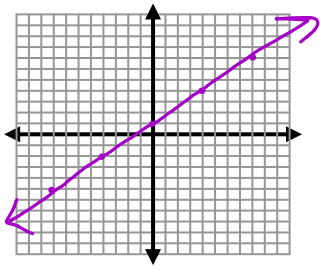
Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):

$y = \frac{3}{4}x + 1$

↑ Slope (rise/run)

↑ y-int

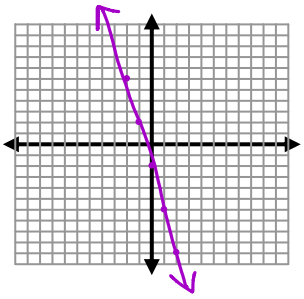


$-4x - y = 2$

$+4x \quad +4x$

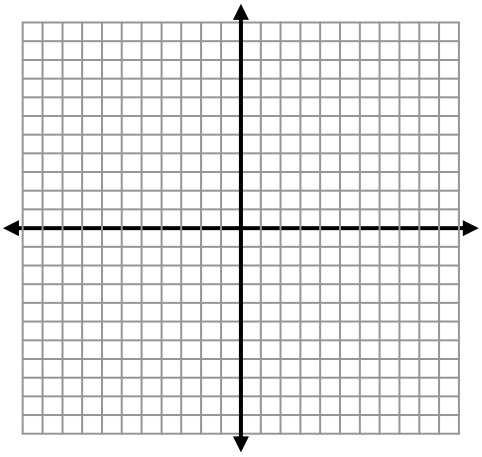
$\frac{-y}{-1} = \frac{4x+2}{-1}$

$y = -4x - 2$

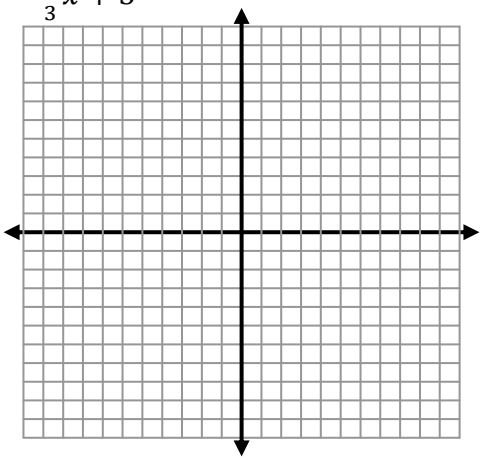


Graph the equation.

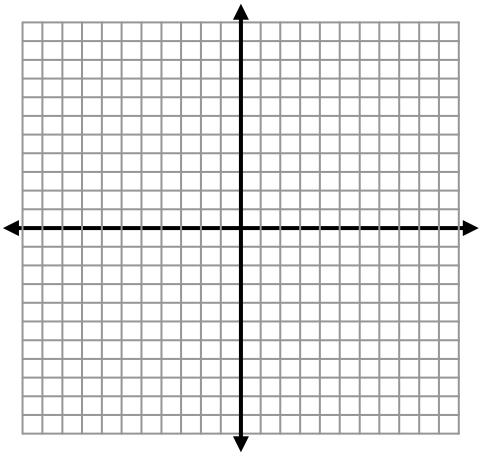
35. $y = \frac{1}{4}x + 2$



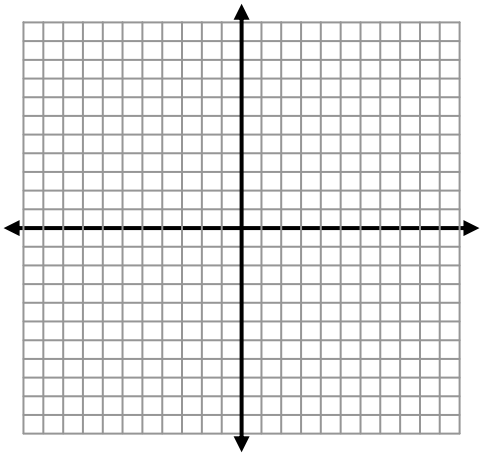
36. $y = -\frac{1}{3}x + 3$



37. $2x + 3y = 6$



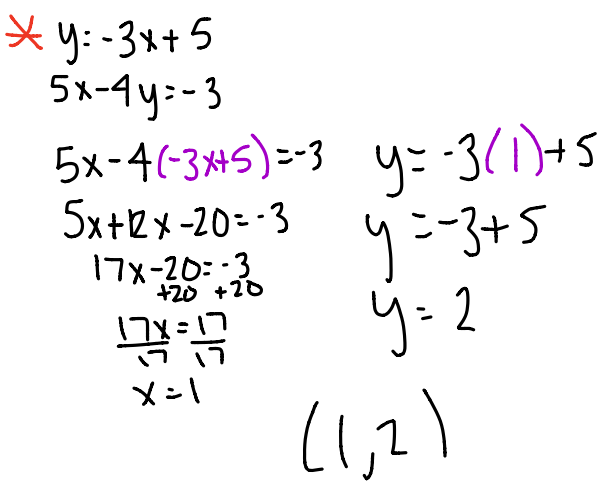
38. $3x - y = 1$

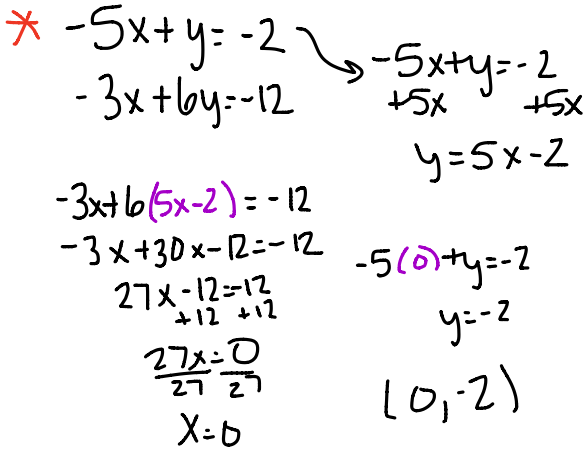


SOLVING SYSTEMS OF EQUATIONS BY SUBSTITUTION

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):





Solve each system by substitution.

39. $y = 6x - 11$
$-2x - 3y = -7$

40. $2x - 3y = -1$
$y = x - 1$

41. $-7x - 2y = -13$
$x - 2y = 11$

42. $-5x + y = -3$
$3x - 8y = 24$

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION

Show all work for full credit. A calculator is not permitted for this section of problems.

Example(s):

$8x+y=-16$
$-3x+y=-5$
$11x=-11$
$x=-1$
$-3(-1)+y=-5$
$3+y=-5$
$y=-8$
$(-1,-8)$

$-4x+9y=9$
$(x-3y=-6)3$
$3x-9y=-18$
$-x=-9$
$x=9$
$9-3y=-6$
$-3y=-15$
$y=5$
$(9,5)$

Solve each system by elimination.

43. $7x + 2y = 24$
$8x + 2y = 30$

44. $x - y = 11$
$2x + y = 19$

45. $5x + y = 9$
$10x - 7y = -18$

46. $-4x - 2y = 14$
$-10x + 7y = -25$