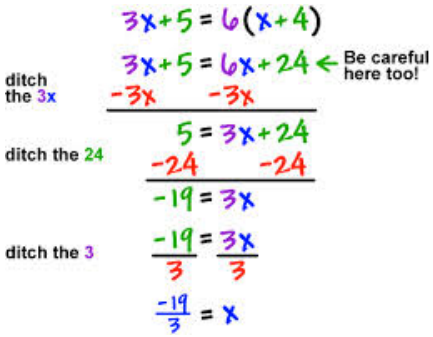
Unit 3 Notes

Algebraic Linear Equations

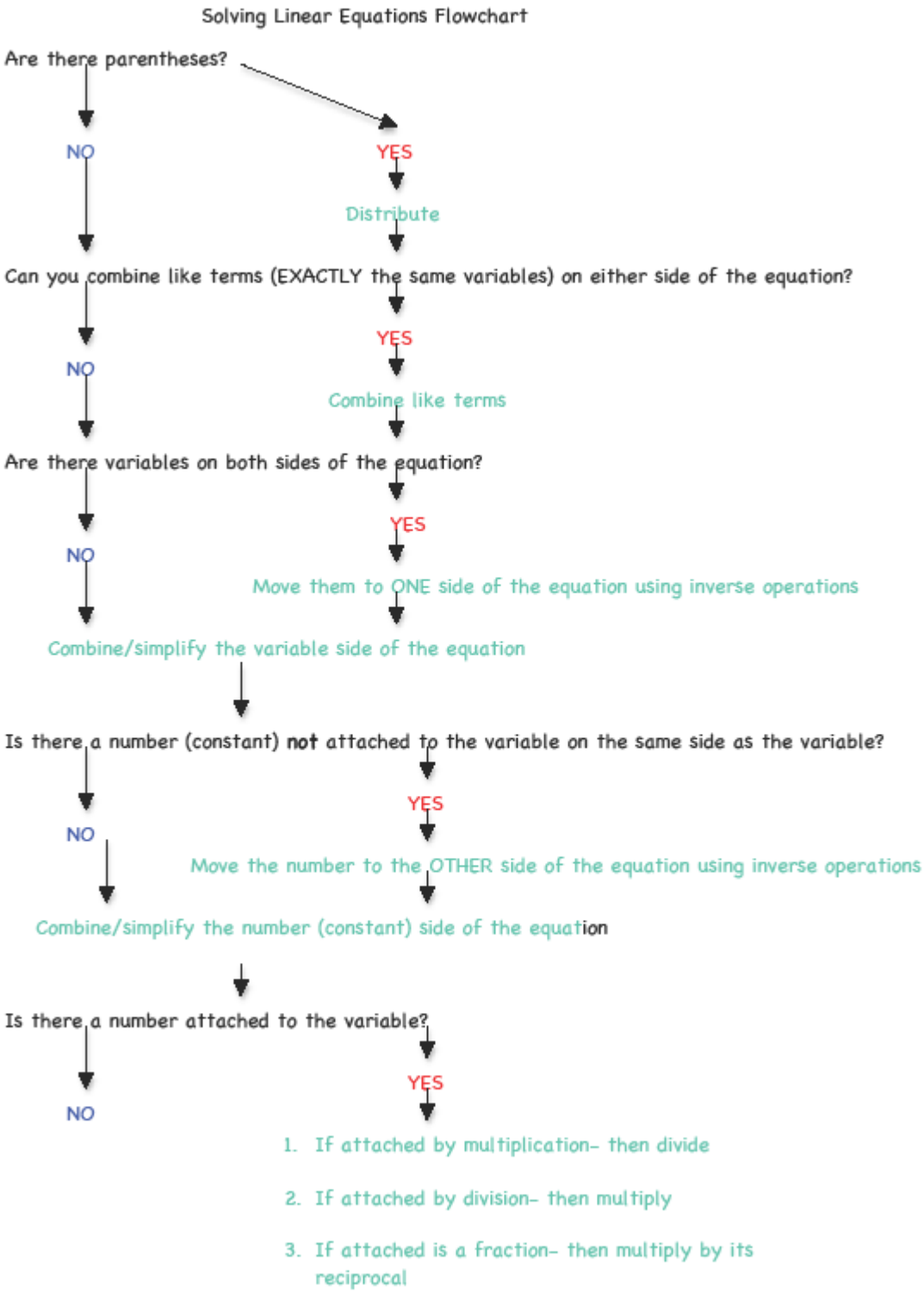


Tentative Schedule

Day	*Date*	*Topic*	*Assignment*
1	Tues. 10/14 Fri. 10/15	Two-Step Equations P.S. #3.1	Video #3.2 with Notes: Equations that Involve Combining Like Terms and Distributing
2	Thurs. 10/16	P.S. #3.2	Video #3.3 with Notes Equations with Variables on Both Sides
3	Fri. 10/17 Mon. 10/20	P.S. #3.3	Video #3.4 with Notes Multi-Step Equations
4	Tues. 10/21	P.S. #3.4	Video #3.5 with Notes Applications of Word Problems
5	Wed. 10/22 Thurs. 10/23	**Quiz** P.S. #3.5	Finish all problem sets and corrections
6	Fri. 10/24	Special Cases of Equations	Watch Video #3.7 with Notes Isolating Variables
7	Mon. 10/27 Tues. 10/28	Finish up P.S. #3.6/3.7	Finish up P.S. #3.6/3.7
8	Wed. 10/29	Activity	Review for Test #3
9	Thurs. 10/30 Fri. 10/31	**Test #3**	Video #4.1 with Notes

Name: _____

Solving Equations Flowchart



Notes 3.1 – Two Step Equations

When we want to _____ _____, we always want to get *x* by _____ on one side.

So we do inverse operations:

addition: _____ subtraction: _____

multiplication: _____ division: _____

Class examples:

1.) $4-\frac{x}{5}=-1$ 2.) $4.7+0.25x=6.2$ 3.) $-4-a=5$

Notes 3.2 – Solving Equations with Like Terms and Distributing

Like Terms: _____

_____

Combine the following like terms:

1.) $5+3y-2x+4x-2y$

Distribute:

2.) $5(w+3)$ 3.) $\frac{1}{3}(3x+6)$ 4.) $-4(2x-5)$

Solve the following equations by first _____, then _____

_____ _____.

5.) $7(a-2)+5+2a=-18$

6.) $4x-3(2x+8)=-12$

7.) $34=9-2x+5$

Notes 3.3 – Equations with Variables on Both Sides

Solve the following equations:

1.) $2m - 2 = 6m - 4$

2.) $2m - 2 = 6m - 4$

3.) $15 - \frac{1}{6}n = \frac{1}{6}n - 1$

4.) $9w + 3 = 4w - 9$

Notes 3.4 – Multi-Step Equations

Steps to solving multi-step equations.

1.) _____.

2.) _____ like terms.

3.) Get the _____ on one side and the _____ on the other.

4.) _____

1.) $5(x+3)+3x=2x-12+3x$

2.) $\frac{1}{2}\left(-4+6x\right)=\frac{1}{3}x+\frac{2}{3}\left(x+9\right)$

3.) $x + \frac{x}{10} = 44$

4.) $\frac{3x}{4} - \frac{2x+1}{4} = -1.5$

5.) $\frac{2x}{3} - \frac{2+x}{2} = -4$

Notes 3.5 – Applications of Linear Equations

Steps to Solving Word Problems

1.) Underline or highlight all given information.
2.) Determine what you want to find out.
3.) Draw a picture if you need to.
4.) Write let statements. *Ask yourself: How many things do I not know?*
5.) Write your equation.
6.) Solve it.
7.) Check it.
*Ask yourself: Does this answer make sense?

1.) Cassidy has a brother who is 3 years younger than she is. The sum of their ages is 23. How old are Cassidy and her brother?

2.) Jared has pennies and dimes in his pocket. The number of pennies is three less than two times the number of dimes he has in his pocket. If he has a total of 46 cents, how many pennies and dimes does he have in his pocket?

3.) The greater of 2 numbers is 1 less than 3 times the smaller. If three times the greater number is 5 more than 8 times the smaller, find the numbers.

4.) When two opposite sides of a square are increased by 3 cm, and the other two opposite sides are decreased by 1 cm, a rectangle with a perimeter of 40 results. Find the length of a side of the original square.

Consecutive Integers	
5	
6	
7	

Consecutive Even Integers	
4	
6	
8	

Consecutive Odd Integers	
5	
7	
9	

5.) Find two consecutive integers whose sum is 45.

6.) Three consecutive even integers are such that the sum of the smallest and 3 times the second exceeds twice the third by 38. Find the integers.

Notes 3.6 – Number of Solutions of an Equation

Directions: For each equation, work with your partner to find the solution. If you get stuck on one, make an educated guess as to the solution and move on to the next so you are sure to get all three completed in the given time.

$2x + 4 = 2(x + 6)$	$4(x - 3) = 6x + 8$	$3(x - 2) = 3x - 6$

Try plugging in some values into each equation.

Null Set: _____

_____

Symbols: _____

Identity: _____

_____

	Null Set	One Solution	Identity
Words			
Algebra Representation			
Example			
Clues to look for			

Notes 3.7 – Isolating Variables

Standard Equation	*Literal Equation*
Solve $2x + 3 = 9$ for x.	Solve $ax + b = c$ for x.

For 1 – 8, isolate y.

1.) $y + 4 = 2x$

2.) $y - 4 = 2x$

3.) $2y = 10x + 8$

4.) $x + 2y = 14$

5.) $x - y = 7$

6.) $4x - 3y = 24$

7.) $x = 3(4 - y)$

8.) $7x - 2y = -22$