Concept: Solving Linear Systems

Name:

➢ **You should have completed Equations – Section 6 Part A: Solving Linear Systems before beginning this handout.**

COMPUTER COMPONENT

Instructions: In **UMATH X** follow the **Content Menu** path:

Equations > **Solving Linear Systems**

NOTE: *Use the **Menu** button in order to get to the lesson where you left off.*

Work through all Sub Lessons of the following Lessons **in order**:
- *Solve a Linear System by Comparison*
- *Solve Problems Using Linear Systems*

As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

NOTES:

Solve a Linear System by Comparison (*Intersecting Lines*)

Step	Example
1. _____ one of the _____ for _____ equation. (*We choose y.*)	$2x - y + 3 = 0$ $x - y - 1 = 0$ $y = \_\_\_ x + \_\_\_\_\_$ (1) $y = \_\_\_ x - \_\_\_\_\_$ (2)
2. For the _____ , _____ of (1) = _____ of (2)	(1) (2) ___ x + _____ = ___ x - _____

UMATH X

3. Solve for _____ variable. (_____ in this case)	____ x + _____ = ____ x - _____ ____ x - ____ x = -_____ - _____ ____ x = _____ x = _____
4. Substitute x = _____ into one of the equations to solve for _____.	y = 3 x + 2 (1) y = 3 (_____) + 2 Common point is (_____, _____)

5.
 	
_____ the solution in each
 	
_____ equation.
	2 x − y + 3 = 0 (1)
	
	x − y - 1 = 0 (2)
	
	For (1)
	
	L.S. = 2 x – y + 3
	
	 = 2 (___) - (____) + 3
	
	 = _____
	
	R.S. = 0 ←———— Same then L.S. = R.S.
	
	For (2)
	
	L.S. = x – y - 1
	
	 = (___) - (____) - 1
	
	 = _____
	
	R.S. = 0 ←———— Same then L.S. = R.S.

Solving a Linear System by Comparison (Intersecting Lines Involving Fractions)

➢ For each equation, _____ the _____ from the equation.

(_____ *each term by a* _____

_____.)

Once we have _____ and _____ the bracket, you now

have equations with which you can continue to solve using the above steps for

solving a linear System by Comparison (Intersecting Lines).

Solving a Linear System by Comparison (Parallel Lines)

➢ Parallel lines do not intersect. Therefore _____ of (1) cannot _____ _____ of (2).

It is _____ possible to solve for _____ (or for _____), and these types of Linear Systems have _____ _____.

Solving a Linear System by Comparison (Coincidental Lines)

➢ Coincidental Lines are IDENTICAL. _____ points on line _____ are also on line _____. This Linear System has an _____ number of _____.

OFF COMPUTER EXERCISES

1. Solve the following linear systems by comparison.

      (a) $y = 2x + 3$
              $y = x - 6$

(b) $x + y - 4 = 0$
  $2x + y + 1 = 0$

(c) $5x + 2y - 8 = 0$
  $2x + 4y + 8 = 0$

(d) $3x + 2y - 5 = 0$
  $4x + 3y - 2 = 0$

2. The local fair charges $6.00 for admission, plus $0.50 for every ride ticket you buy. The neighboring town's fair offers free admission, but charges $1.00 for every ride ticket. *When is the local fair the better deal?*

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3. The cost to rent a car with Company A is $25 per day plus $0.15 per km driven. The cost to rent a car with Company B is $30 per day plus $0.10 per km driven. *Under what circumstances is Company A the better company to rent with?*

4. The cost to rent a movie at Video Plus is $2.00 for the first night plus $0.50 for every night after that. The cost to rent a movie at Videos-R-Us is $6.00 for 7 nights. *When is Videos-R-Us the better deal?*

5. Which method would you choose to solve the given system of equations? Why? *Justify your answer and then solve it.*

$$6x + 4y = 23 \quad (1)$$

$$6x + 14y = 10 \quad (2)$$

6. A teacher hands out a math test to 36 students. The total marks for the test is 100 and it has 38 problems. The questions are worth either 5 marks or 2 marks. *How many questions of each type of mark are on the test? Justify your answer.*