

Group Members \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

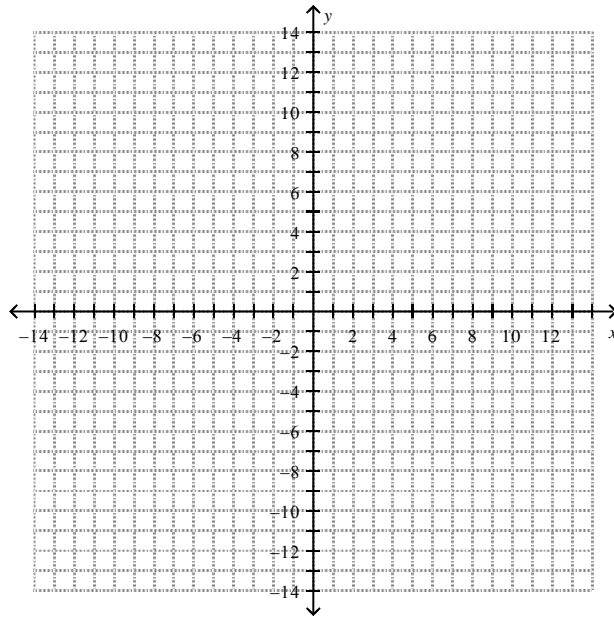
## Solving Systems of Linear Equations

### Directions:

1. Each group member will receive a system problem: A, B, or C.
2. Each member will solve their system problem by **graphing**. Work needs to be shown in a neat manner so that others in your group may follow your work
3. When everyone is finished with the graphing, the papers are to be passed to the group member on the right→ Here you will solve the system of equations by using the **substitution method**. Show your work in the space provided.
4. Finally, pass the paper to the group member to the right→ Solve the system of equations by the **elimination method**. Again, show your work in the space provided.
5. Class discussion: What are some of the criterion used to determine the best method to solve the system of equations?
  
6. Group discussion: Examine the three systems of equations and the three methods used to solve each system. Determine as a group which is or are the preferred methods for each system.
  
7. Now as a group work the application problem.
  
8. The group will turn in this page, the three system problems, and the application problem. Each group member is to keep his/her own summary table.

**System A**  $\begin{cases} x + y = 5 \\ 3x - y = 3 \end{cases}$

Method 1: Solution by Graphing



Ans: (     ,     )

Method 2: Solution by Substitution

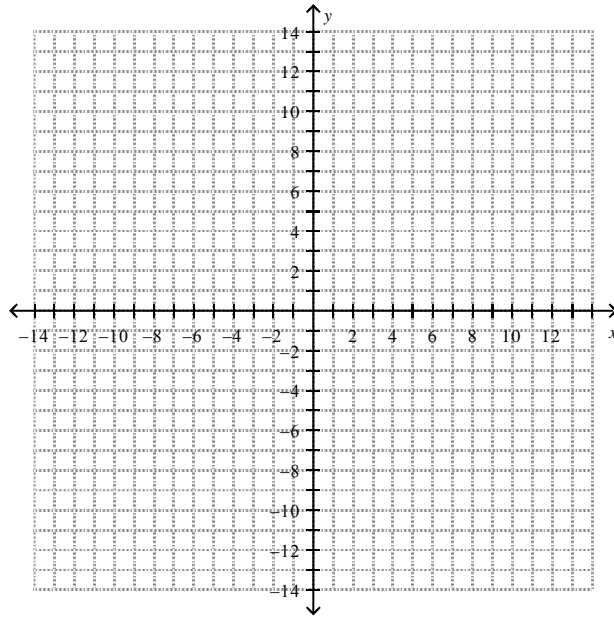
Ans: (     ,     )

Method 3: Solution by Elimination

Ans: (     ,     )

**System B**  $\begin{cases} x + 4y = 1 \\ 2x - 3y = 24 \end{cases}$

Method 1: Solution by Graphing (*graphing calculator or table of values will help!!*)



Ans: (     ,     )

Method 2: Solution by Substitution

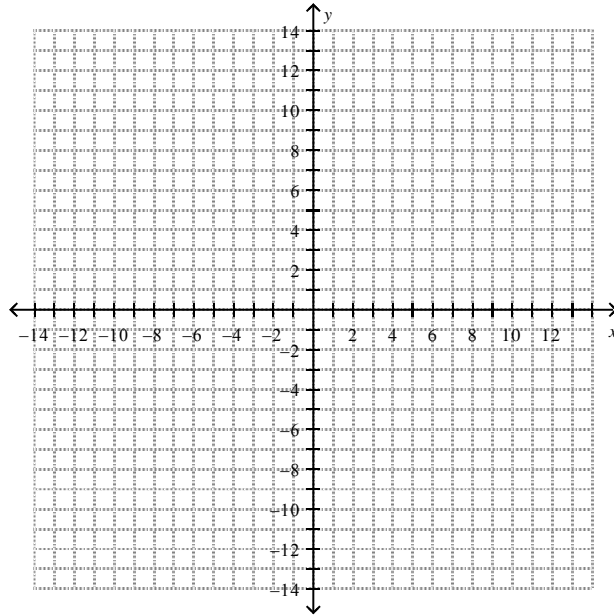
Ans: (     ,     )

Method 3: Solution by Elimination

Ans: (     ,     )

**System C** 
$$\begin{cases} -2x + y = 3 \\ 4x + y = 6 \end{cases}$$

Method 1: Solution by Graphing



Ans: (      ,      )

Method 2: Solution by Substitution

Ans: (      ,      )

Method 3: Solution by Elimination

Ans: (      ,      )

6. Examine the three methods used to solve each system. Determine as a group what is or are the preferred method(s) for each system (each member is to fill his/her own table).

System	Preferred Method(s)	Reason(s)
<p style="text-align: center;"><b>A</b></p> $\begin{cases} x + y = 5 \\ 3x - y = 3 \end{cases}$		
<p style="text-align: center;"><b>B</b></p> $\begin{cases} x + 4y = 1 \\ 2x - 3y = 24 \end{cases}$		
<p style="text-align: center;"><b>C</b></p> $\begin{cases} -2x + y = 3 \\ 4x + y = 6 \end{cases}$		

6. Examine the three methods used to solve each system. Determine as a group what is or are the preferred method(s) for each system (each member is to fill his/her own table).

System	Preferred Method(s)	Reason(s)
<p style="text-align: center;"><b>A</b></p> $\begin{cases} x + y = 5 \\ 3x - y = 3 \end{cases}$		
<p style="text-align: center;"><b>B</b></p> $\begin{cases} x + 4y = 1 \\ 2x - 3y = 24 \end{cases}$		
<p style="text-align: center;"><b>C</b></p> $\begin{cases} -2x + y = 3 \\ 4x + y = 6 \end{cases}$		

6. Examine the three methods used to solve each system. Determine as a group what is or are the preferred method(s) for each system (each member is to his/her own table).

System	Preferred Method(s)	Reason(s)
<p style="text-align: center;"><b>A</b></p> $\begin{cases} x + y = 5 \\ 3x - y = 3 \end{cases}$		
<p style="text-align: center;"><b>B</b></p> $\begin{cases} x + 4y = 1 \\ 2x - 3y = 24 \end{cases}$		
<p style="text-align: center;"><b>C</b></p> $\begin{cases} -2x + y = 3 \\ 4x + y = 6 \end{cases}$		

8. Splash and Ride Amusement Park has two different ticket prices for a one day pass. Ticket Plan 1 charges an entry fee of \$35 and \$5.00 for each ride. Ticket Plan 2 has an entry fee for \$57 and \$3.00 for each ride.

**A.** Make a table to show the relationship between the total cost of the amusement park and the number of rides.

Plan 1:

# Rides	Solve	Cost
0	$35 + 0(5.00)$	35.00
1	$35 + 1(5.00)$	40.00
2		
3		
4		

Plan 2:

# Rides	Solve	Cost
0		
1		
2		
3		
4		

**B.** What are your variables and what do they stand for? \_\_\_\_\_

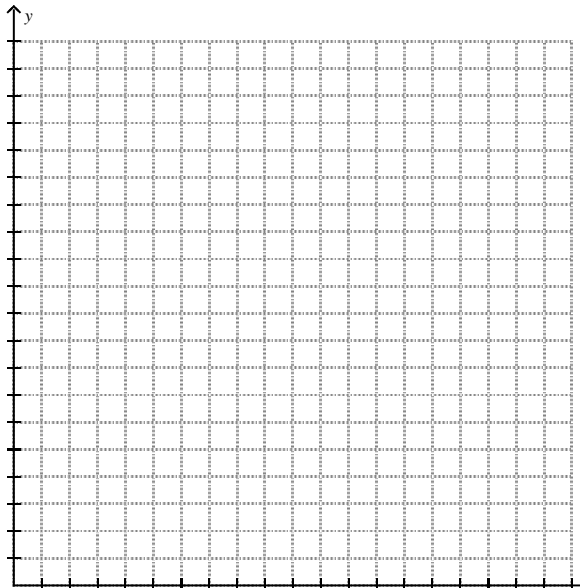
\_\_\_\_\_

**C.** Write an equation for Plan 1: \_\_\_\_\_

**D.** Write an equation for Plan 2: ? \_\_\_\_\_

**E.** Graph on your calculator the two equations, and transfer the graph to your paper. Label your axes!!!

set windows:  $X_{min}=0, X_{max}=20, X_{scl}=2$  - - -  $-Y_{min}=0, Y_{max}=150, Y_{scl}=20$



The intersection point is: \_\_\_\_\_

Why is the solution to the system of equations called the break even point?

If you are planning on going on at least 15 rides, which ticket plan is a better deal for you?

If you are not going on more than 5 rides which ticket plan do you want to buy?

To find intersection: Use: 2<sup>nd</sup> TRACE 5-ENTER, ENTER,ENTER