Systems Worksheet

Name _____

Find the solution, by graphing, to the following systems:

*Note: The solution is the point of intersection of the two graphs (i.e. where they cross).

Preliminary Setup:- (Resetting the calculator)

Turn [ON] the calculator (located on the bottom left of the calculator)
Press [2nd] then [+] for mem
Select the Reset option (on TI82's #3 and on TI83's #2) followed by option #2 (on TI82's Reset and on TI83's Default)
now on TI83's select option #2: Reset then press [ENTER]
Turn the calculator OFF by selecting [2nd] then [ON]
Turn the calculator [ON] If you do not see anything on the screen tell your teacher.
Press [ZOOM], and then press [6] (for standard)

☞On TI81's press [RANGE] and change the Xmin = -10 to **Xmin = -9** or

☞On TI82's or TI83's press [WINDOW] and change the Xmin = -10 to **Xmin = -8.8**

1) y = 2x and y = ¯1x + 3

Setup: first write the equation in slope-intercept form (y = mx + b) by solving for y in each equation:
already done in this problem - both equations are already in slope-intercept form (y = mx + b)

Step 1: Press [Y=] and then
on TI81's after the Y_1 = enter [2] [X|T] so that it looks like: $Y_1 = 2x$
on TI82's or TI83's after the Y_1 = enter [2] [X,T,θ] so that it looks like: $Y_1 = 2x$

Step 2: Press the blue [down arrow] (or the ENTER key) so that the cursor is now after the Y_2 = and then
on TI81's after the Y_2 = enter [(-)] [1] [X|T] [+] [3] so that it looks like: $Y_2 = -1x + 3$
on TI82's or TI83's after the Y_2 = enter [(-)] [1] [X,T,θ] [+] [3] so that it looks like: $Y_2 = -1x + 3$

Step 3: Press [GRAPH]
Press [TRACE]
Press the [up arrow] a few times and watch as the cursor moves from one equation to the other equation and watch as the X= and Y= at the bottom of the screen change.

Step 4: Press the [right arrow] until the cursor is at the point of intersection of the two graphs.
If you press the [up arrow] the cursor should not move and the X= and Y= numbers at the bottom will not change
The solution is the *ordered pair* of numbers at the bottom of the screen: (1 , 2)

2) 3x - y = -5 and x + 2y = 3

Setup: first write the equation in slope-intercept form (y = mx + b) by solving for y in each equation:
y = 3x + 5 and y = ¯0.5x + 1.5

Step 1: Press [Y=] and then
on TI81's after the Y_1 = enter [3] [X|T] [+] [5] so that it looks like: $Y_1 = 3x + 5$
on TI82's or TI83's after the Y_1 = enter [3] [X,T,θ] [+] [5] so that it looks like: $Y_1 = 3x + 5$

Step 2: Press the blue [down arrow] (or the ENTER key) so that the cursor is now after the Y_2 = and then
on TI81's after the Y_2 = enter [(-)] [0] [.] [5] [X|T] [+] [1] [.] [5] so that it looks like: $Y_2 = -0.5x + 1.5$
on TI82's or TI83's after the Y_2 = enter [(-)] [0] [.] [5] [X,T,θ] [+] [1] [.] [5] so that it looks like: $Y_2 = -0.5x + 1.5$

Step 3: Press [GRAPH]
Press [TRACE]

Step 4: Press the [left arrow] until the cursor is at the point of intersection of the two graphs.
If you press the [up arrow] the cursor should not move and the X= and Y= numbers at the bottom will not change

The solution is the *ordered pair* of numbers at the bottom of the screen: _____

over

3) y = x + 9 and y - 7 = ¯1x
Setup: first write the equation in slope-intercept form (y = mx + b) by solving for y in each equation:

y = x + 9 and y = _____
Press [Y=] and enter the equations after Y_1 = and Y_2 =
Note: be sure to delete [DEL] any extra symbols or numbers in each equation
Press [GRAPH]
Press [TRACE]
Press the [left or right arrow] until the cursor is at the point of intersection of the two graphs.

The solution is the *ordered pair* of numbers at the bottom of the screen: _____

4) 2x + 2y = 10 and y - 4x = 0
Setup: first write the equation in slope-intercept form (y = mx + b) by solving for y in each equation:

x = _____ and y = _____

Press [Y=] and enter the equations after Y_1 = and Y_2 =
Note: be sure to delete [DEL] any extra symbols or numbers in each equation
Press [GRAPH]
Press [TRACE]
Press the [left or right arrow] until the cursor is at the point of intersection of the two graphs.

The solution is the *ordered pair* of numbers at the bottom of the screen: _____

5) y = 2x + 3 and y = 2x - 4
Setup: already done - both equations are already in slope-intercept form (y = mx + b)
Press [Y=] and enter the equations after Y_1 = and Y_2 =
Note: be sure to delete [DEL] any extra symbols or numbers in each equation
Press [GRAPH]
Press [TRACE]
Find the point of intersection of the two graphs.
Are the slopes of both lines the same? _____ Are the y-intercepts of both lines the same? _____

Are the two lines parallel? _____ What is intersection? _____

6) y = 2x + 2 and y = 2x + 6/3
Setup: already done - both equations are already in slope-intercept form (y = mx + b)
Press [Y=] and enter the equations after Y_1 = and Y_2 = (Note: the Y_2 equation will look like: Y_2 = 2x + 6÷3)
Note: be sure to delete [DEL] any extra symbols or numbers in each equation
Press [GRAPH]
Press [TRACE]
Press the [up arrow] a few times and watch as the cursor moves from one equation to the other equation and watch the X= and Y= at the bottom of the screen not change.

Are the slopes of both lines the same? _____ Are the y-intercepts of both lines the same? _____

Are the two lines parallel or something else? _____

If 'something else' then what? _____

What is intersection? ('none' is the *wrong* answer) _____