Name_____

Solving Systems Using a Graphing Calculator

A graphing calculator can be used to find solutions to linear systems. You can use the *intersect* feature of the calculator to get an answer that is very close to, and sometimes *exactly* equal to, the actual solution. Follow this process:

Solve the linear system using a graphing calculator.

$5x + 2y = 6$ Equation 1

$x - 3y = -5$ Equation 2

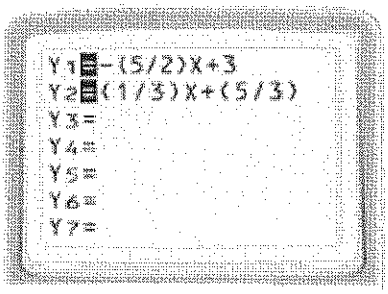
STEP 1 ***Rewrite equations***

Solve each equation for y.

Equation 1	Equation 2
$5x + 2y = 6$	$x - 3y = -5$
$2y = -5x + 6$	$-3y = -x - 5$
$y = -\frac{5}{2}x + 3$	$y = \frac{1}{3}x + \frac{5}{3}$

STEP 2 ***Enter equations***

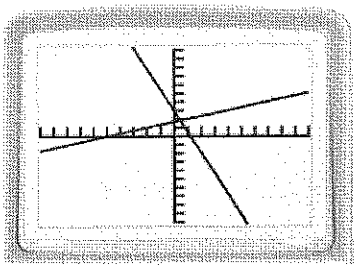
Press Y= and enter the equations.



Be sure to put fractions in parentheses!

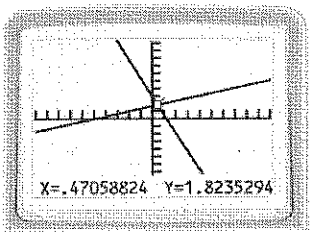
STEP 3 ***Display graph***

Graph the equations using a standard viewing window.



STEP 4 ***Find point of intersection***

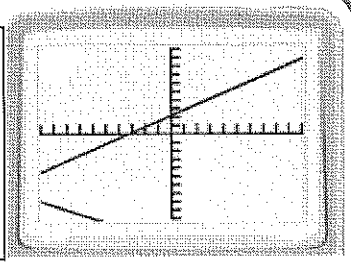
Use the *intersect* feature to find the point where the graphs intersect.



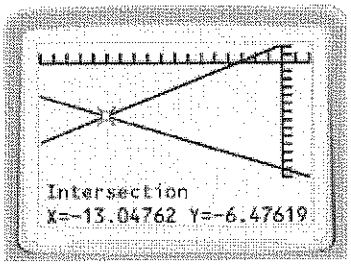
The solution is about (0.47, 1.8).

Press 2ND CALC (above the TRACE key.) Then choose 5:Intersect from the menu.

Note: Sometimes the intersection is not visible in the standard viewing window.



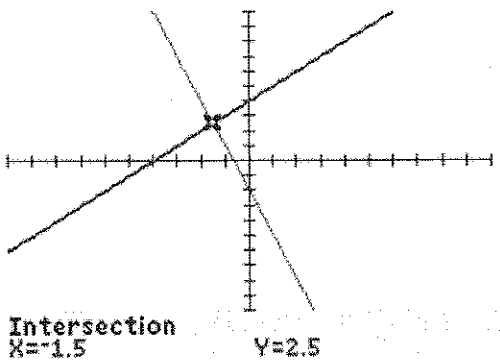
Adjust the WINDOW until you can see the intersection.



Try this one:

$y = x + 4$

$y = -3x - 2$



The solution is (-1.5, 2.5).

Solve each system by graphing the equations on your calculator. (You may need to solve for y first.) Be sure to put all fractions in parentheses. Adjust your window if you cannot see the intersection.

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

2) $y = x + 3$
$y = -4x - 2$

3) $y = 6x + 4$
$y = x - 1$

4) $y = -x + 3$
$y = -7x - 3$

5) $y = 29x + 130$
$y = -14x - 85$

6) $y = 24x - 12$
$y = 49x - 37$

7) $y = 9x - 35$
$y = 31x - 57$

8) $y = -44x + 1$
$y = -21x - 22$

9) $x + y = -3$
$6x + y = 2$

10) $3x - 2y = 8$
$x + 4y = 12$

11) $x - 2y = 8$
$x + y = -1$

12) $x + 2y = -2$
$x - 2y = -6$

13) $y = 49x + 34$
$34x + 3y = -79$

14) $y = -23x - 21$
$13x + 3y = 105$

15) $-8x - y = 49$
$y = -6x - 45$

16) $-40x + 35y = -145$
$y = -6x - 97$