

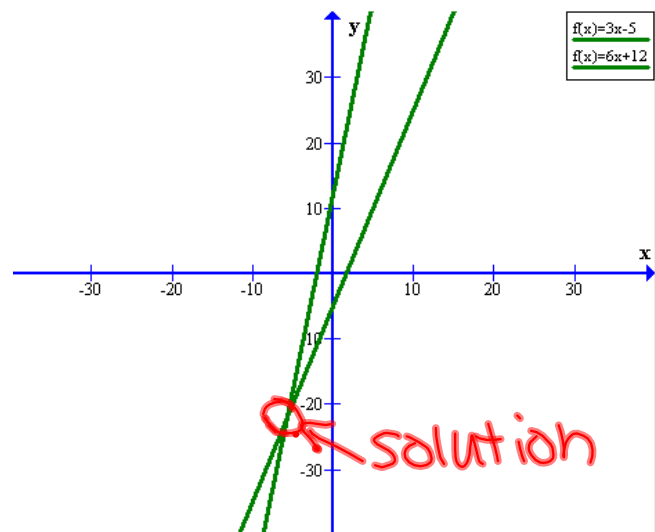
Systems of Equations

Aka solving multiple Equations

2 variables / 2 $\in \mathbb{Q}$

$$y = 3x - 5$$

$$y = 6x + 12$$



Solution is the point where the 2 lines intersect!

2 ways to solve

- 1) substitution
- 2) linear combination

Substitution

$$y = 3x - 5$$

$$y = 6x + 12$$

$$3x - 5 = 6x + 12$$

$$\begin{array}{r} -6x \\ -6x \end{array}$$

$$-3x - 5 = 12$$

$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$\frac{-3x = 17}{-3}$$

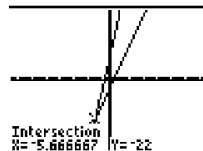
$$x = -\frac{17}{3} = -5\frac{2}{3}$$

but we also need to know y.
 $y = 3x - 5$ original EQ


$$y = 3\left(-\frac{17}{3}\right) - 5$$

$$y = -17 - 5 = -22$$

$$\boxed{\left(-5\frac{2}{3}, -22\right)}$$



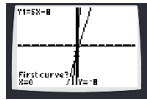
In the calculator

- 1) put each EQ in $y=mx+b$
- 2) Graph
 - enter equations in $y=$
 - use "X,T,θ,n" for variable
 - Hit GRAPH
- 3) Find point of intersection
 - Goto Calculate menu
 - by pressing: 



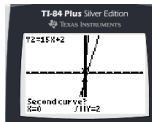
- Select option 5
 - by hitting 5, or scrolling down & hitting enter

- It prompts for 1st curve



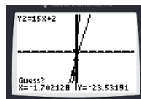
→ Hit enter

- It prompts for 2nd curve



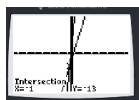
→ Hit enter again

- It prompts for a guess



→ you can scroll towards it and hit enter or just hit enter

- It gives you the answer!



$(-1, -13)$