Nature of solutions of a system of linear equations 1.30.17 Lesson 27

Welcome

Try exercise 1-3 on your own in the book.
Go over 1-3 as a class talk about slopes and y-intercepts
Same slope different y-intercept: parallel: no solution
Different slope: y-intercept does not matter: one solution
Same Slope same y-intercept: Lines are on top of each other Infinitely many solutions

Graph the lines y=3x+5 and y=8x+3

We can graph these easily, but can we see where the intersection is easily? No.

On the graph can we agree that when these two lines intersect, at that exact point, they have the same (x,y). Since we know they have the same (x,y) we know that the y's are the same. So since y=3x+5 and y=8x+3 could we take what y is equal to in y=3x+5 and replace for the y in y=8x+3? Yes. So now we have the equation 3x+5=8x+3. Which we can solve for x. x=⅖ and since we know what x is we can plug it into either of our first equations to solve for y. y=31/5.

Sometimes it is not as easy
Let's go through y=7x-2 and 2y-4x=10

And 4y=26x+4 and y=11x-1

Homework Mod 4 lesson 27 exercises 4-7