

Function Notation

Treat $f(x)=y$ aka solve for x disregard $f(x)$ then plug into y (3.3)

Slope intercept form etc also applies tooo

$$f(x)=-2x$$

$$f(x) = -2(0)$$

'plug in a rando #'

you plugged in 0 for x so $x=0$, the answer you got was 0 so $y=0$

Solutions

No solution: answer is different numbers or letters

Infinitely Many solutions: Both sides of equation are identical

Linear inequalities

Infinity always has parenthesis

brackets apply to the greater/less than or equal to sign and

when you divide a negative inequality term, you swap the $>$, $<$ etc.

Consecutive Integers

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There are only two formulas to remember to solve these problems

The first one is consecutive integers.

What are consecutive integers?

0	1	2	3	4	5	6
x	x+1	x+2	x+3	x+4	x+5	x+6

So the formula for consecutive integers is $x + (x+1) + (x+2) \dots$. And so on. The number of terms we have depends on the number the problem asks us to find

Substitution Method

EXAMPLE 5 Use the substitution method to solve the system.

$$\begin{cases} 2x + 4y = -6 & \text{First equation} \\ x = 2y - 5 & \text{Second equation} \end{cases}$$

Solution In the second equation, we are told that x is equal to $2y - 5$. Since they are equal, we can substitute $2y - 5$ for x in the first equation. This will give us an equation in one variable, which we can solve for y .

$$\begin{aligned} 2x + 4y &= -6 & \text{First equation} \\ 2(2y - 5) + 4y &= -6 & \text{Substitute } 2y - 5 \text{ for } x. \\ 4y - 10 + 4y &= -6 \\ 8y &= 4 \\ y &= \frac{4}{8} = \frac{1}{2} & \text{Solve for } y. \end{aligned}$$

Elimination method

EXAMPLE 7 Use the elimination method to solve the system.

$$\begin{cases} x - 5y = -12 & \text{First equation} \\ -x + y = 4 & \text{Second equation} \end{cases}$$

Solution Since the left side of each equation is equal to the right side, we add equal quantities by adding the left sides of the equations and the right sides of the equations. This sum gives us an equation in one variable, y , which we can solve for y .

$$\begin{aligned} x - 5y &= -12 & \text{First equation} \\ -x + y &= 4 & \text{Second equation} \\ \hline -4y &= -8 & \text{Add} \\ y &= 2 & \text{Solve for } y. \end{aligned}$$

Graphing formulas

Point Slope $y - y_1 = m(x - x_1)$

Slope intercept $y = mx + b$

Standard $Ax + By = C$

Slope Formula $y - y_1$ over $x - x_1$

when in doubt make a table

Function

For each x there is exactly one y in the range

Lines

Parallel Same slope

Perpendicular Slope is a negative reciprocal of the other line

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