

Last Practice Assessment

ALG A: Solving a linear system; compound inequalities; absolute value equations

1. Find the unique  $(x, y)$  solution to the linear system  $\begin{cases} 2x - 6y = 16 \\ -3x + 2y = -17 \end{cases}$

I can make these opposites: -6 and 6!

$$\begin{cases} 2x - 6y = 16 \\ -3x + 2y = -17 \end{cases} \times 3$$

$$\begin{cases} 2x - 6y = 16 \\ -9x + 6y = -51 \end{cases}$$


---


$$\begin{aligned} -7x + 0y &= -35 \\ -7x &= -35 \\ \frac{-7x}{-7} &= \frac{-35}{-7} \\ x &= 5 \end{aligned}$$

? plug  $x=5$  into either original equation

$$\begin{aligned} 2(5) - 6y &= 16 \\ 10 - 6y &= 16 \\ -10 & \quad -10 \\ -6y &= 6 \\ y &= -1 \end{aligned}$$

$(5, -1)$

2. Find and graph the solution set:  $-26 \leq 9x + 10 \leq 64$

Solve simultaneously

$$\begin{aligned} -10 & \quad -10 & -10 \\ -36 & \leq 9x & \leq 54 \\ \frac{-36}{9} & \leq \frac{9x}{9} & \leq \frac{54}{9} \\ -4 & \leq x & \leq 6 \end{aligned}$$

$-4 \leq x \leq 6$

or:  $[-4, 6]$



3. Find all values of  $x$  such that  $|4 - 8x| = 84$

$$\begin{aligned} \checkmark \quad & 4 - 8x = 84 \\ -4 & \quad -4 \\ -8x &= 80 \\ \boxed{x = -10} & \end{aligned}$$

$$\begin{aligned} \downarrow \quad & 4 - 8x = -84 \\ -4 & \quad -4 \\ -8x &= -88 \\ \boxed{x = 11} & \end{aligned}$$

ALG B: Solving a quadratic equation by factoring; by completing the square; roots

4. Find all values of  $x$  such that  $5x^2 + 3x = 8$

Put in standard form  
 $Ax^2 + Bx + C = 0$

check:  
 $(5x+8)(x-1)$   
 $5x^2 - 5x + 8x - 8$   
 $5x^2 + 3x - 8$

$$5x^2 + 3x - 8 = 0$$

$$(5x + 8)(x - 1) = 0$$

$\downarrow$                        $\downarrow$   
 $5x + 8 = 0$                $x - 1 = 0$   
 $5x = -8$                        $x = 1$   
 $x = -8/5$                $x = 1$

Factors of 8  
 $1, 8 \rightarrow 1 \times 5, 8 \rightarrow 5, 8 \rightarrow 8 - 5 = 3!$   
 $2, 4$

5. Find all values of  $x$  such that  $x^2 - 10x - 22 = 0$

Factor?  $1, 22$   
 $2, 11$  ... can't make 10... Try completing the square.  
 $+\left(\frac{B}{2}\right)^2$ \*

$$x^2 - 10x - 22 = 0$$

$$x^2 - 10x = 22$$

$$\left(-\frac{10}{2}\right)^2 \rightarrow (-5)^2 \rightarrow 25$$

$$x^2 - 10x + 25 = 22 + 25$$

$$(x-5)(x-5) = 47$$

$$(x-5)^2 = 47$$

$$\sqrt{(x-5)^2} = \sqrt{47}$$

$$x-5 = \pm\sqrt{47}$$
 $x = 5 \pm \sqrt{47}$

6. Use a graphing calculator to find the roots/zeros of

$$f(x) = 12x^3 - 118x^2 + 318x - 252$$

omit

curious how to do this?  
 use TI-84, enter Equation into  $Y_1$  in the  $\boxed{Y=}$  menu,  
 then  $\boxed{GRAPH}$ , then  $\boxed{2^{nd}}$  +  $\boxed{TRACE}$  + "ZERO".