Solutions

N. M.

ALG A: Solving a linear system

Practice Assessment

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

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I can make 2 into 6...

By multiplying by 3!

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

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

Just what I want to see!

$-7x + 0y = -35$

Add vertically

$\frac{-7x}{-7} = \frac{-35}{-7}$

$x = 5$

plug into EITHER original eqn...

$2(5) - 6y = 16$

$10 - 6y = 16$

$-10 \quad -10$

$\frac{-6y}{-6} = \frac{6}{-6}$

$y = -1$

$(5, -1)$

ALG B: Solving a quadratic equation by factoring; compound inequalities

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

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$-8 \quad -8$

Gather all on same side

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

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

Factor

Set each $= 0$

-8: $\pm 1, \pm 8$
$\pm 2, \pm 4$

Trial and Error

$5x + 8 = 0$

$-8 \quad -8$

$\frac{5x}{5} = \frac{-8}{5}$

$x = -\frac{8}{5}$

$x - 1 = 0$

$+1 \quad +1$

$x = 1$

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

Solve simultaneously.

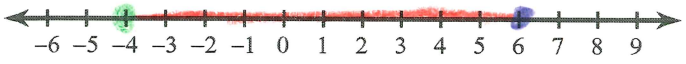
$-26 \leq 9x + 10 \leq 64$

$-10 \quad -10 \quad -10$

$-36 \leq 9x \leq 54$

$\frac{-36}{9} \leq \frac{9x}{9} \leq \frac{54}{9}$

$-4 \leq x \leq 6$



ALG C

Should be at most 3 roots.

4. Use a graphing calculator to find the roots/zeroes of $f(x) = 12x^3 - 118x^2 + 318x - 252$

Y=

$y_1 = 12x^3 - 118x^2 + 318x - 252$

Graph, see this

use 2ND → TRACE → 2: ZERO to find roots:

$x = 1.5, 2.333, 6$

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

Two Cases:

either the interior is { positive, or negative

$|4 - 8x| = 84$

IF POSITIVE

$4 - 8x = 84$

$-4 \quad -4$

$-8x = 80$

$\frac{-8x}{-8} = \frac{80}{-8}$

$x = -10$

IF NEGATIVE

$-(4 - 8x) = 84$

$-4 + 8x = 84$

$+4 \quad +4$

$8x = 88$

$\frac{8x}{8} = \frac{88}{8}$

$x = 11$

Absolute Value:

Distance on number line from zero

ex $|-12| = -(-12) = 12$

ex $|42| = (42) = 42$

Absolute Values: make negatives → pos
keep positives → pos.