We've covered virtually every concept on Test 1, CI. Test 1 : Monday

Today: Brief (review) §1.7 talk.

Then in-class work.

Recall: $|A| = B \Rightarrow A = \pm B$ $\}$ $A = B$ or $A = -B$

only thing new is now $A = ax^2+bx+c$ is sometimes quadratic.

$|x^2-5x+5| = 1$ Spawns two equations.

$x^2-5x+5 = 1$ or $x^2-5x+5 = -1$ *

$x^2-5x+4 = 0$ $x^2-5x+6 = 0$

$(x-1)(x-4) = 0$ $(x-2)(x-3) = 0$

$x = 1, 4$ $x = 2, 3$

$x \in \{1, 2, 3, 4\}$

$-\frac{4}{1} \cdot \frac{4}{4} + \frac{25}{4} = \frac{9}{4}$

$x^2-5x+4 = 0$

$x^2-5x = -4$

$\frac{5}{2} \rightsquigarrow \left(\frac{5}{2}\right)^2 = \frac{25}{4}$

$x^2-5x+\left(\frac{5}{2}\right)^2 = -4+\frac{25}{4}$

$\left(x-\frac{5}{2}\right)^2 = \frac{9}{4}$

$\sqrt{\left(x-\frac{5}{2}\right)^2} = \sqrt{\frac{9}{4}}$

$\left|x-\frac{5}{2}\right| = \frac{3}{2}$

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

$x = \frac{5 \pm 3}{2}$ ...

$\left(x-\frac{5}{2}\right)^2 = \frac{9}{4}$

$x-\frac{5}{2} = \pm\sqrt{\frac{9}{4}} = \pm\frac{3}{2}$

$x = \frac{5 \pm 3}{2}$ ...

$x^2-5x+\left(\frac{5}{2}\right)^2 = -4+\frac{25}{4}$

$\sqrt{\left(x-\frac{5}{2}\right)^2} = \sqrt{\frac{9}{4}}$ ← Cramming too much into one line/step.

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

Also, compound inequalities:
Mind your and's & or's.
Already worked with these on the 1st assignment (099 FINAL)

$3-2x < 5$

$-2x < 2$

$x > \frac{2}{-2} = -1$

$x > -1$

$= (-1, \infty)$

$3-2x < 5$

$\frac{-2x}{-2} < \frac{2}{-2}$

$x > -1$

Does not follow

Does not follow

§1.7 #s 1-17, 19, 22, 23, 26, 27, 34, 35, 38, 39, 41, 45, 47, 50, 53, 56, 60, 62, 63, 67, 74, 77, 79, 81, 84, 91, 93

Katie says, S' 1.6, I did #30 instead of #31, and mis-copied #34.

(34) $(x-2)^{-\frac{1}{2}} = \frac{1}{3}$

$(x-2)^{\frac{1}{2}} = \frac{3}{1} = 3$

$\left((x-2)^{\frac{1}{2}}\right)^2 = 3^2$

$x-2 = 9$

$x = 11$

$x \in \{11\}$

$A = B \Rightarrow A^2 = B^2$

$A^2 = B^2 \not\Rightarrow A = B$

$A^2 = B^2 \Rightarrow A = \pm B$

$\sqrt{A}$ is Principle Square Root and always positive (or zero).

$\pm$

$\sqrt{25} = 5$

$\sqrt{25} \neq -5$

$\sqrt{4} = 2 \neq -2$

$\sqrt{x^2} = |x|$

$\sqrt{(-3)^2} = 3 = \sqrt{3^2}$

$\sqrt{}$

S 1.6 #12

check $x = 5$ in $\sqrt{x-1} = x-7$

$\sqrt{5-1} \stackrel{?}{=} 5-7$

$\sqrt{4} \stackrel{?}{=} -2$

$2 \stackrel{?}{=} -2$

* Nevah !

Sep 10-8:34 AM

§1.6 # 1

$\frac{-4x}{-4} = x \qquad \frac{-12}{-4} = 3$

Scott, Michelle

$x^3+3x^2-4x-12=0$

$x^2(x+3)-4(x+3)=0$

$\frac{x^2(x+3)}{x+3} = x^2$

$\frac{-4(x+3)}{x+3} = -4$

$(x+3)(x^2-4)=0$

$(x+3)(x-2)(x+2)=0$

$x \in \{\pm 2, -3\}$

Check: Remainder Theorem!

$f(x) = x^3+3x^2-4x-12$

use synthetic division to find $f(-3)$:

Divide $f(x)$ by $x+3$ & look @ remainder.

$$\begin{array}{r|cccc} -3 & 1 & 3 & -4 & -12 \\ & & -3 & 0 & 12 \\ \hline & 1 & 0 & -4 & 0 = f(-3) \\ & x^2 & x & c & r \end{array}$$

This work says:

$\frac{x^3+3x^2-4x-12}{x+3} = x^2-4+\frac{0}{r}$

$x^3+3x^2-4x-12 = (x^2-4)(x+3)+0$

$\frac{1}{p} - \frac{2}{\sqrt{9p+1}} = 0$ LCD: $p\sqrt{9p+1}$

$\frac{1}{p} \cdot \frac{\sqrt{9p+1}}{\sqrt{9p+1}} - \frac{2}{\sqrt{9p+1}} \cdot \frac{p}{p} = 0 = \frac{0}{LCD}$

$\frac{\sqrt{9p+1} - 2p}{LCD} = \frac{0}{LCD}$

$\sqrt{9p+1} - 2p = 0$ by hand

checking this bear sucks

⋮

Sep 10-8:48 AM