REVIEW SECTIONS:

1.5 → 71, 77

(71) $-5 \le 4-3x \le 2$

$-4 \quad -4 \quad -4$

$\frac{-9}{-3} \le \frac{-3x}{-3} \le \frac{-2}{-3}$

$3 \ge x \ge \frac{2}{3}$

$\boxed{\frac{2}{3} \le x \le 3}$

$\left[\frac{2}{3}, 3\right]$; 

(77) $(x+2)(x-3) > (x-1)(x+1)$

$x^2-3x+2x-6 > x^2-x+x-1$

$x^2-x-6 > x^2-1$

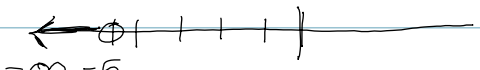
$-x^2 \qquad -x^2$

$-x-6 > -1$

$+6 \quad +6$

$-x > 5$

$\boxed{x < -5}$



$(-\infty, -5)$

EX: ~~$0 <$~~ $1 < x+4$

ignore

$1 < x+4$

(75) $1 < 1 - \frac{1}{2}x < 4$ * Find LCD
LCD = 2

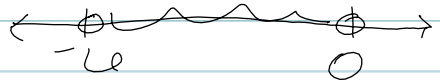
$2 < 2 - 1x < 8$

$-2 \quad -2 \quad -2$

$\frac{0}{-1} < \frac{-x}{-1} < \frac{6}{-1}$

$0 > x > -6$

$\boxed{-6 < x < 0}$ always from least to greatest



1.6 → 41, 53

(41) $|3t-2| \leq 4$

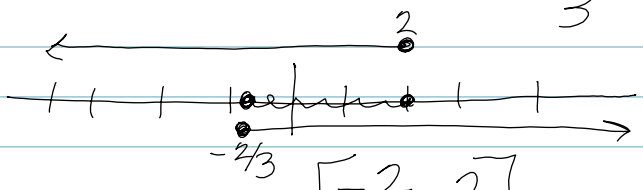
less than → and (common)

$3t-2 \leq 4$ AND $3t-2 \geq -4$

$+2 \quad +2 \qquad +2 \quad +2$

$3t \leq 6 \qquad 3t \geq -2$

$t \leq 2 \qquad t \geq -\frac{2}{3}$



$\left[-\frac{2}{3}, 2\right]$

SHORT CUT:

$3t-2 \leq 4$ AND $3t-2 \geq -4$

$-4 \leq 3t-2$

$-4 \leq 3t-2 \leq 4$

solve from here

$|x| < a \rightarrow -a < x < a$

(53) $-|2x-1| \geq -3$

$\quad -1 \qquad\quad -1$

$|2x-1| \leq 3$

↑ and (common)

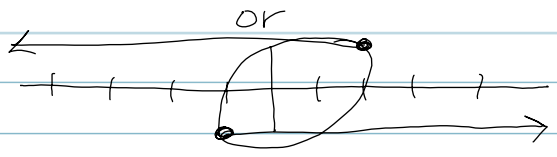
$2x-1 \leq 3$ and $2x-1 \geq -3$

$+1 \quad +1 \qquad +1 \quad +1$

$2x \leq 4 \qquad 2x \geq -2$

$x \leq 2$ and $x \geq -1$

$-1 \leq x \leq 2$



$[-1, 2]$

(25.) ~~$5 - \left|\frac{1}{2}x\right|$~~

$|x^2-9| = 0$

$x^2-9=0$

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

$x+3=0$ $\quad x-3=0$

$x=-3$ $\quad x=3$

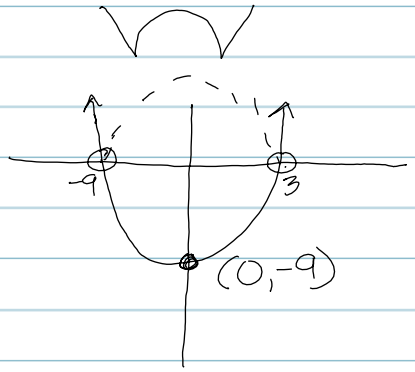
$x^2-9=0$

$x^2=9$

$\sqrt{x^2}=\sqrt{9}$

$x=\pm\sqrt{9}$

$x=\pm 3$



(31.) $\left|\frac{3x-2}{2x-3}\right| = 2$

$\frac{3x-2}{2x-3} = 2$ $\qquad \frac{3x-2}{2x-3} = -2$

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

$3x-2=4x-6$

$-3x \qquad -3x$

$-2=x-6$

$+6 \qquad +6$

$4=x$

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

$3x-2=-4x+6$

$+4x \qquad +4x$

$7x-2=6$

$+2 \qquad +2$

$7x=8$

$x=\frac{8}{7}$

$\{\frac{8}{7}, 4\}$

REVIEW → 27, 17, 21, 69

(17.) $\sqrt[3]{x^2-1} = 2$

$\left(\sqrt[3]{x^2-1}\right)^3 = 2^3$

$x^2-1=8$

$x^2=9$ or $x^2-9=0$

$x=\pm 3$

(21.) $x^4+5x^2+4=0$

$(x^2+4)(x^2+1)=0$

$(x+2)(x-2)(x-1)(x+1)=0$

$x+2=0 \rightarrow x=-2$

$x-2=0 \quad x=2$

$x-1=0 \quad x=1$

$x+1=0 \quad x=-1$

$\{-2,-1,1,2\}$

(27) $\sqrt{x+1} + \sqrt{x-1} = \sqrt{2x+1}$

$\left(\sqrt{x+1} + \sqrt{x-1}\right)^2 = \left(\sqrt{2x+1}\right)^2$

$\left(\sqrt{x+1} + \sqrt{x-1}\right)\left(\sqrt{x+1} + \sqrt{x-1}\right) = 2x+1$

$(x+1) + \sqrt{(x+1)(x-1)} + \sqrt{(x-1)(x+1)} + (x-1) = 2x+1$

$2\sqrt{(x+1)(x-1)} = 1$

$4(x+1)(x-1) = 1$

$4(x^2-1) = 1$

$4x^2 - 4 = 1$

$4x^2 = 5$

$x^2 = \frac{5}{4}$

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

potential answers

CHECK:

$x = -\frac{\sqrt{5}}{2}$

$\sqrt{x+1} + \sqrt{x-1} = \sqrt{2x+1}$

$\sqrt{-\frac{\sqrt{5}}{2}+1} + \sqrt{-\frac{\sqrt{5}}{2}-1} = \sqrt{2(-\sqrt{5})+1}$

— neg.

$x = \frac{\sqrt{5}}{2}$

$\sqrt{x+1} + \sqrt{x-1} = \sqrt{2x+1}$

OR USE CALCULATOR

$\sqrt{\frac{\sqrt{5}}{2}+1} + \sqrt{\frac{\sqrt{5}}{2}-1} = \sqrt{2\left(\frac{\sqrt{5}}{2}\right)+1}$

$x = \frac{\sqrt{5}}{2} \approx 1.12$

$\sqrt{1.12+1} + \sqrt{1.12-1} = \sqrt{2(1.12)+1}$

$\sqrt{2.12} + \sqrt{0.12} = \sqrt{3.24}$

$1.456 + 0.346 = 1.8$

$1.802 \approx 1.8$ ✓

(69.) $(2+3i)^3$; form $a+bi$

$(2+3i)(2+3i)(2+3i)$

$(2+3i)(4+6i+6i+9i^2)$

$9(-1)$

-9

$(2+3i)(-5+12i)$

$-10+24i-15i+36i^2$

$36(-1)$

-36

$-46+9i$

$i = \sqrt{-1}$

$i^2 = -1$