2.3
Notes

INEQUALITIES

OBJECTIVES: 1) Solve inequalities and compound inequalities.
2) Solve absolute value inequalities.

COMPOUND INEQUALITIES

Solve for x.

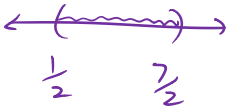
1. $-\frac{3}{4} < \frac{2-x}{2} < \frac{3}{4}$ mult. by 4

$-3 < 2(2-x) < 3$

$-3 < 4-2x < 3$

$-7 < -2x < -1$

$\frac{7}{2} > x > \frac{1}{2}$



ABSOLUTE VALUE INEQUALITIES

Less ThAND: $|x| < 1$

$x < 1$ & $-(x) < 1$

$x > -1$

GreatOR: $|x| \geq 1$

$x \geq 1$ or $-(x) \geq 1$

$x \leq -1$

2) $|x-5| \leq 2$

$x-5 \leq 2$ and $-(x-5) \leq 2$

$x-5 \geq -2$

$x \leq 7$ and $x \geq 3$

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

$2-\frac{x}{3} > 5$ or $-\left(2-\frac{x}{3}\right) > 5$

$-\frac{x}{3} > 3$

$x < -9$

$2-\frac{x}{3} < -5$

$-\frac{x}{3} < -7$

$x > 21$

4) $\left|\frac{x+2}{4} - \frac{x-3}{3}\right| < 1$

$\frac{x+2}{4} - \frac{x-3}{2} < 1$

$\frac{x+2}{4} - \frac{2(x-3)}{4} < 1$

$\frac{x+2-2x+6}{4} < 1$

$\frac{-x+8}{4} < 1$

$-x < -4$

$x > 4$ and

$-\left(\frac{x+2}{4} - \frac{x-3}{2}\right) < 1$

$-\left(\frac{-x+8}{4}\right) < 1$

$\frac{-x+8}{4} > -1$

$-x+8 > -4$

$x < 12$