That Chapter 1 Test:
Get it perfect, by hitting Chapter 1.
I'll break the test into sections, but really, you need to OWN Chapter 1.

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§2.1 Linear Equations in One Variable

$ax+b=c$
↳ Variable to 1st degree

$3x+2=7$

We add, subtract, multiply or divide both sides of an equation by the same (nonzero) thing.

$a=b \iff a+c=b+c$

Equivalent Equations.

Stack 'em!

$3x+2=7$
$-2 \quad =-2$

$3x+2-2=7-2$
$\iff 3x=5$

$3x=5$ Need 2 see

$\frac{3x}{3}=\frac{5}{3}$ optional

$x=\frac{5}{3}$ Need 2 see

I don't like this:

$\frac{3x}{3}=\frac{5}{3}$

combining steps is dangerous.

$-2x<7$

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

$3x + 2 = 7$
$-2 \quad = -2$
$3x = 5$
$x = \frac{5}{3}$

collect like terms →

$-3x + 7 + x = 9x + 3 - 2x$
$-2x + 7 = 7x + 3$
$-7 = -7$
$-2x = 7x - 4$
$-7x = -7x$
$-9x = -4$

optional

$\frac{-9x}{-9} = \frac{-4}{-9}$

$x = -\frac{4}{-9} = \frac{4}{9} = x$

Write Much,
Think little.
Teach your hand to do this stuff.
Free your mind.

$\frac{-9x}{-9} = \frac{-4}{-9}$ Bad!

Leave Bread Crumbs.

Fractions: Book teaches "clear fractions"
I want everything over one denominator.
In MAT 121, Rational Inequalities can't be solved with "clear fractions"

$\frac{y}{3} - \frac{y}{4} = \frac{1}{6}$ $\quad 3=3,\ 4=2\cdot2,\ 6=2\cdot3$ } LCD $=2\cdot2\cdot3$

$\frac{y}{3}\cdot\frac{2\cdot2}{2\cdot2} - \frac{y}{2\cdot2}\cdot\frac{3}{3} = \frac{1}{2\cdot3}\cdot\frac{2}{2}$

$\frac{4y-3y}{2\cdot2\cdot3} = \frac{2}{2\cdot2\cdot3}$

$\frac{A}{B} = \frac{C}{B} \Rightarrow A=C$

$4y-3y=2$ which is where clearing fractions gets you, too.

$y=2$

$\frac{2}{x-1} + \frac{5}{x+2} > \frac{7}{1}$ coming to college algebra

what's the LCD have that $x-1$ doesn't?

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

$\frac{2}{x-1}\cdot\frac{x+2}{x+2} + \frac{5}{x+2}\cdot\frac{x-1}{x-1} > \frac{7}{1}\cdot\frac{(x-1)(x+2)}{(x-1)(x+2)}$

$\frac{2(x+2)+5(x-1)}{(x-1)(x+2)} > \frac{7(x-1)(x+2)}{(x-1)(x+2)}$

$\frac{2(x+2)+5(x-1)-7(x-1)(x+2)}{(x-1)(x+2)} > 0$ is the goal, here

Combine numerator.
Do sign pattern

MAT 121

Decimals: Just multiply by an appropiate power of 10.

$.24(2x+3) = -0.01(2x+2)$

$100(.24(2x+3)) = (-0.01(2x+2))(100)$

$24(2x+3) = -1(2x+3)$

$48x + 72 = -2x - 3$

$-72 = -72$

$48x = -2x - 75$

$+2x = +2x$

$50x = -75$

$x = \frac{-75}{50} = -\frac{3 \cdot 5 \cdot 5}{2 \cdot 5 \cdot 5}$

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

$5y = 27y$

$-22y = 0$

$y = 0$

$3 \mid 75$ $5 \mid 25$ 5

$2 \mid 50$ $5 \mid 25$ 5

§2.1 #s 1, 4, 7, 10, ..., 64

Dingbat!

$2x + 3 = 0$

$2x = -3$

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