SOLVING EQUATIONS OF ONE VARIABLE ALGEBRAICALLY

ALGEBRA uses the concept of isolating the variable by applying the inverse ("0pposite") to BOTH sides of the EQuation

- if you can solve the "one step" problem scenarios below (a-f). You can solve any multi-step Equation.

a) $x+7=-9$

$x+7=-9$

$-7 \quad -7$

$x=-16$

b) $7x=-21$

$\frac{7x}{7}=\frac{-21}{7}$

$x=-3$

c) $\frac{x}{-7}=-4$

$(-7)\frac{x}{-7}=-4(-7)$

$1x=28$

$x=28$

d) $-x=5$

$\frac{-1x}{-1}=\frac{5}{-1}$

$1x=-5$

$x=-5$

e) $\frac{2}{3}x=12$

$\frac{3}{2}\cdot\frac{2}{3}x=12\cdot\frac{3}{2}$

$x=\frac{36}{2}$

$x=18$

f) $-\frac{2}{3}x=\frac{4}{5}$

$\left(-\frac{3}{2}\right)-\frac{2}{3}x=\frac{4}{5}\left(-\frac{3}{2}\right)$

$x=-\frac{12}{10}$

$x=-\frac{6}{5}$

"Examples e & f are solved multiplying by the RECIPROCAL of the fraction next to the variable. If the fraction is (-), then it's reciprocal is also (-).
You could solve Ex.'s b through d, similalrly."

MULTI-STEP PROBLEMS

g) $3k-5=-21$

$3k-5=-21$

$+5 \quad +5$

$\frac{3k}{3}=\frac{-16}{3}$

$k=-\frac{16}{3}$

h) $\frac{r-5}{3}=-21$

$(3)\frac{r-5}{3}=-21(3)$

$r-5=-63$

$+5 \quad +5$

$r=-58$

i) $\frac{p}{3}-5=-21$

$\frac{p}{3}-5=-21$

$+5 \quad +5$

$\frac{p}{3}=-16$

$(3)\frac{p}{3}=-16(3)$

$p=-48$

"Notice the DIFFERENCE between Example h) and i)."

j) $8=4(3c+5)$

$8=4(3c+5)$ Mult.

$8=12c+20$

$-20 \quad -20$

$\frac{-12}{12}=\frac{12c}{12}$

$-1=c$ or $c=-1$

k) $-\frac{1}{2}(x-6)=4$

$\left(-\frac{2}{1}\right)-\frac{1}{2}(x-6)=4\left(-\frac{2}{1}\right)$

$x-6=\frac{4\cdot-2}{1}$

$x-6=-8$

$+6 \quad +6$

$x=-2$

FINALLY: mAKE sURE tO "KYSS" your work.

KEEP YOUR STEPS STRAIGHT

- Always re-copy original Problem. Never ruin it in your work.
- Use the line paper to guide you per step. Each step is a Math full sentence, compared to your writing class.