Date: KEY

10.3 Notes: Solving Two Step Equations

What steps were done to "x" to turn it into " $\frac{x}{5}+2$ "?

x
↓ ÷5 ↑ ×5
$\frac{x}{5}$
↓ +2 ↑ -2
$\frac{x}{5}+2$

What steps do you think you would need to do to turn $\frac{x}{5}+2$ back into an x ?

1. subtract 2
2. multiply by 5

Practice:
What steps are needed to turn each of the following back into x?

$\frac{x}{3}+7$

1. subtract 7
2. multiply by 3

$\frac{x}{-8}-3$

1. add 3
2. multiply by (-8)

Solving Two Step Equations

Follow the reverse order of operations to isolate the variable on one side

Solving an equation means: finding the value of the variable

x	=	100
↓ ÷5		↓ ÷5 ↑ ×5
$\frac{x}{5}$	=	20
↓ +2		↓ +2 ↑ -2
$\frac{x}{5}+2$	=	22

What steps were done to turn one line into the next line?

1. divide by 5
2. add 2

How would you go backwards and turn the last line back into the first line?

1. subtract 2
2. multiply by 5

Examples:

$\frac{x}{2}=1$ $\times 2 \quad \times 2$ $\boxed{x=2}$	$\frac{-x}{3}=5$ $\times 3 \quad \times 3$ $-x=15$ $\div(-1) \quad \div(-1)$ $\boxed{x=-15}$	$\frac{x}{3}-2=1$ $+2 \quad +2$ $\frac{x}{3}=3$ $\times 3 \quad \times 3$ $\boxed{x=9}$
$\frac{x}{2}+4=1$ $-4 \quad -4$ $\frac{x}{2}=-3$ $\times 2 \quad \times 2$ $\boxed{x=-6}$	$\frac{x}{5}+3=10$ $-3 \quad -3$ $\frac{x}{5}=7$ $\times 5 \quad \times 5$ $\boxed{x=35}$	$\frac{-x}{2}+6=-3$ $-6 \quad -6$ $\frac{-x}{2}=-9$ $\times 2 \quad \times 2$ $\frac{-x}{-1}=\frac{-18}{-1}$ $\boxed{x=18}$

The cost for Bobby-Sue to go to the monster truck rally is \$3 less than one third of her dad's adult ticket. The cost of the child ticket is 6 dollars. How much was the adult ticket?

↳ LET a BE THE COST OF AN ADULT TICKET.

THEN: "(THE COST FOR BOBBY-SUE TO GO TO THE MONSTER TRUCK RALLY → THE COST OF THE CHILD TICKET IS \$6. → 6) IS (\$3 LESS THAN (ONE THIRD OF (HER DAD'S ADULT TICKET → a → $\frac{a}{3}$)) → $\frac{a}{3}-3$)

$=$

SO: $6=\frac{a}{3}-3$; $+3 \quad +3$ | $9=\frac{a}{3}$; $\times 3 \quad \times 3$ | $27=a$

THE COST OF AN ADULT IS \$27.