STUDY GUIDE = ALGEBRA - SOLVING FOR X

Also known as MAKING X THE SUBJECT (or any other variable)
You have solved an equation when you get a variable alone on one side of the equation and everything else is on the other side.

$A=lw$ $V=\pi r^2 h$ $x=\dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$ $y=2$ $t=\dfrac{a^2+b}{c}$ $r=-2$

SUBJECT OF THE EQUATION

THE MAIN RULES

1. Break the equation into TWO PARTS
   ↳ this is always done along the equal sign
2. Do the OPPOSITE OPERATION
   ↳ ask yourself what is being done to the variable & do the opposite
   ↳ this will always be an operation + a number
   ↳ the opposite of adding → subtracting } and vise versa
      the opposite of multiplying → dividing
3. Do this on BOTH SIDES of the equation
   ↳ assess and combine like terms
   ↳ at this point, something should cancel out and that same thing would have moved to the other side of the equation
4. Keep doing this until the VARIABLE IS BY ITSELF

POINTS TO CONSIDER

5. If there is MORE THAN ONE OPERATION, follow the order of operations __backwards__
   ↳ __PEMDAS__ ←
6. COMBINE like terms
   ↳ like terms (same variable & same exponent) must always be combined
   ↳ if like terms are on the same side, combine first
   ↳ if like terms are on different sides, move one of the terms to the other side (step # 2 & 3) and then combine
7. If there is a denominator below the entire equation, get rid of the denominator by MULTIPLYING BOTH SIDES of the equation by the denominator FIRST
   ↳ this is the first step for a fractional equation
   ↳ do not do this for a fractional expression
8. If there is something odd looking or not mentioned above, ISOLATE it (get it by itself)
   ↳ opposite of squaring → square root
   ↳ opposite of cubing → cube root
   ↳ undo absolute value → set equal to the positive & solve __and__ negative & solve
   ↳ variable in exponent → get bases equal then set exponents equal & solve