Number Tricks and Solving Equations

For equations that look more complicated, your knowledge of number tricks will help you solve them.

Let’s review how to make a number trick that gives you back your original number.

* First, you build up an expression.
* Then, you \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

For example, how could you make a number trick that un-does the steps below?

|  |  |
| --- | --- |
| **Build Up the Expression** | **Un-Do the Expression** |
| Description | Example with x = 10 | Description | Example with x = 10 |
| a). Pick a # |  | h). |  |
| b). Multiply by 4 |  | g).  |  |
| c). Add 8 |  | f).  |  |
| d). Divide by 2 |  | e). |  |

Let’s make a number trick that builds up and then un-does the expression $\frac{x+5}{3}-1$.

|  |  |
| --- | --- |
| **Build Up the Expression** | **Un-Do the Expression** |
| Description | Example with x = 10 | Description | Example with x = 10 |
| a). Pick a number | $$x$$ | h).  |  |
| b).  |  | g).  |  |
| c).  |  | f).  |  |
| d).  |  | e).  |  |

When we solve the equation $\frac{x+5}{3}-1=23$, we follow the same steps we used to **un-do** the expression above. The only difference is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

For each equation, first list the steps needed to build up and un-do the expression. Then solve the equation.

 14). $\frac{x+5}{3}-1=-23$ 15). $\frac{x}{8}-2=-5$

 16). $2\left(\frac{x}{4}\right)-9=16$ 17). $\frac{3x+4}{8}=-3$

 18). $-4\left(\frac{x}{2}-1\right)=12$ 19). $\frac{\frac{\frac{x}{5} + 1}{4} + 3}{7}=2$

**Licensing:**

This material is licensed under the Creative Commons Attribution license. To view a copy of the license, visit: <http://creativecommons.org/licenses/by/3.0/>

**Author:**

**Kevin Hall**