

Study Guide

Number Relation Problems

02/29/2012

Number Relation Problems

Number relation problems involve sentences that must be translated into equations.

To translate sentences, review the following phrase/number equivalences:

If x is equal to 4, then $x = 4$

If the sum of $2x$ and $2y$ is 23, then $2x + 2y = 23$

If 3 is less than twice y, then $2y > 3$

If $5x$ decreased by y is more than $2y$, then $5x - y > 2y$

If the result of 7 more than 3 times x is y, then $3x + 7 = y$

Example: One number is 2 less than another number. If twice the larger number is decreased by 3 times the smaller number, the result is 20.

Step 1: Translate the first sentence in the problem into the first equation.

Let x and y represent the unknown numbers, with y representing the larger number and x representing the smaller number.

Step 2: Translate the second sentence in the problem into the second equation.

Use x and y as in the first equation, substituting them into their respective locations in the equation.

Step 3: Substitute $x + 2$ for y in the second equation.

Step 4: Distribute the 2 across $(x + 2)$.

Step 5: Combine the similar terms.

Step 6: Subtract 4 from both sides.

Step 7: Divide each side by -1 to find the value of x.

