2.1 Solving Equations Introduction

Equation	vs.	Expression
has an =		does not have an =
"Solve"		"Simplify"

An equation is like: a balanced scale

* maintain balance
* operation done to one side must be done to the other side

GOAL: Get variable alone

* use inverse operations to undo what was done to the variable

Examples:

1. $x + 4 = 8$ (adding 4) * Subtract 4 from both sides

$x + 4 - 4 = 8 - 4$

$x = 8 - 4$

$\boxed{x = 4}$

2. $5x = 30$ (times 5) * Divide by 5 on both sides

$\frac{5x}{5} = \frac{30}{5}$

$x = \frac{30}{5}$

$\boxed{x = 6}$

3. $y - 6 = 2$ (minus 6) * add 6 to both sides

$y - 6 + 6 = 2 + 6$

$y = 2 + 6$

$\boxed{y = 8}$

4. $\frac{x}{4} = 7$ (divide by 4) * multiply by 4 on both sides

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

$x = 7(4)$

$\boxed{x = 28}$

5. $5 = x - 10$ * Add 10 to both sides

$5 + 10 = x$

$\boxed{15 = x}$

6. $21 = -3b$ * Divide by -3 on both sides

$\frac{21}{-3} = b$

$\boxed{-7 = b}$

7. $3 + a = -4$ * Subtract 3 from both sides

$a = -4 - 3$

$\boxed{a = -7}$

8. $\frac{1}{2}y = 8$ * Divide by $\frac{1}{2}$ on both sides

$y = 8 \div (\frac{1}{2})$

$\boxed{y = 16}$

9. $-2 = m - 6$ * Add 6 to both sides

$-2 + 6 = m$

$\boxed{4 = m}$

10. $-5 = -4 + d$ * Add 4 to both sides

$-5 + 4 = d$

$\boxed{-1 = d}$

HOMEWORK

Worksheet HW 2.1 Equation Solving Intro