

12-12-17

Aim: SWBAT solve and check "CLT" equations and "Variables On Both Sides" equations.

Do Now: Take out your notes from yesterday

HW: Pg. 295 # 3 - 9 (solve and check)

Pg. 300 # 8 - 12 (solve and check)

Test Tuesday ???

How to Play the Equations Game

#1 Eliminating numbers on the same side as the variable

- Constants eliminate with opposite sign
- Coefficients eliminate with division of the coefficient
- Denominators eliminate with multiplication of the denominator
- Fractional Coefficients eliminate with multiplication of the reciprocal

} need to
make 1
sign stays
the same

#2 Variable terms eliminate with opposite sign

#3 Two-Step Equations

- i. Eliminate the constant
- ii. Eliminate the coefficient or denominator

#4 Entire side as a fraction

- i. Eliminate the denominator

#5 Distributive Property and Combining Like Terms Equations

- i. Simplify before you solve
 - Eliminate parentheses
 - Combine Like Terms

#6 Variables on Both Sides Equations

- i. Eliminate a variable term

Checking an Equation

- i. Rewrite the original equation
- ii. Substitute the answer for the variable
- iii. Evaluate until sides match using the Order of Operations

Step iii repeats as long as it takes.

Solve and check.

Combining Like Terms

$$\begin{array}{l} \boxed{3x + 8x} = 55 \\ \cancel{11x} = 55 \\ \hline 11 11 \\ x = 5 \end{array}$$

check

$$\begin{array}{l} 3x + 8x = 55 \\ 3 \cdot 5 + 8 \cdot 5 \stackrel{?}{=} 55 \\ \checkmark \checkmark \\ 15 + 40 \stackrel{?}{=} 55 \\ \checkmark \checkmark \\ 55 = 55 \end{array}$$

Variables on Both Sides

$$\begin{array}{l} 55 + \boxed{3x} = 8x \\ - 3x - 3x \\ \hline 55 = 5x \\ \hline 5 5 \\ 11 = x \end{array}$$

check

$$\begin{array}{l} 55 + 3x = 8x \\ 55 + 3 \cdot 11 \stackrel{?}{=} 8 \cdot 11 \\ \checkmark \checkmark \\ 55 + 33 \stackrel{?}{=} 88 \\ \checkmark \checkmark \\ 88 = 88 \end{array}$$

CLT

$$\begin{array}{r|l} \boxed{4x} - \boxed{x} + \boxed{2x} - 6 = -11 & \\ \hline 5x - 6 = -11 & \\ +6 & +6 \\ \hline \cancel{5x} & \cancel{-6} \\ & \hline x & = -1 \end{array}$$

$$\begin{aligned} 4x - x + 2x - 6 &= -11 \\ 4(-1) - (-1) + 2(-1) - 6 &\stackrel{?}{=} -11 \\ -4 + 1 + (-2) - 6 &\stackrel{?}{=} -11 \\ -11 &= -11 \end{aligned}$$

Variables on Both Sides

$$\begin{array}{r|l} 4x - 6 = -11 - x & \\ +x & \quad \quad \quad +x \\ \hline 5x - 6 = -11 & \\ +6 & +6 \\ \hline \cancel{5x} & \cancel{-6} \\ & \hline x & = -1 \end{array}$$

$$\begin{aligned} 4x - 6 &= -11 - x \\ 4(-1) - 6 &\stackrel{?}{=} -11 - (-1) \\ -4 - 6 &\stackrel{?}{=} -11 + 1 \\ -10 &\stackrel{?}{=} -10 \end{aligned}$$

CLT

$$\boxed{2x - 5x} - 5 = 3$$

$$-3x - 5 = 3$$

$$+5 \quad +5$$

$$\begin{array}{r} -3x - 5 = 3 \\ \hline -3x = 8 \\ \hline x = -\frac{8}{3} \end{array}$$

$$2x - 5x - 5 = 3$$

$$\frac{2 \cdot 8}{-3} - \frac{5 \cdot 8}{-3} - 5 = 3$$

$$\frac{-16}{3} + \frac{40}{3} - 5 = 3$$

$$\frac{24}{3} - 5 = 3$$

$$8 - 5 = 3$$

$$3 = 3$$

Variables on Both Sides

$$2x - 5 = 5x - 3$$

$$\begin{array}{r} 2x - 5 = 5x - 3 \\ \hline -2x \quad -2x \end{array}$$

$$\begin{array}{r} -5 = 3x - 3 \\ \hline +3 \quad +3 \end{array}$$

$$\begin{array}{r} -2 = 3x \\ \hline -2 \quad -2 \\ 3 \quad 3 \end{array}$$

$$-\frac{2}{3} = x$$

$$2x - 5 = 5x - 3$$

$$2\left(-\frac{2}{3}\right) - 5 = 5\left(-\frac{2}{3}\right) - 3$$

$$\frac{-4}{3} - 5 = \frac{-10}{3} - 3$$

$$\frac{-4}{3} - \frac{15}{3} = \frac{-10}{3} - \frac{9}{3}$$

$$\frac{-19}{3} = \frac{-19}{3}$$