

12-4-17

Aim: SWBAT solve and check one-step addition and subtraction equations including rational numbers.

Do Now:

HW: Textbook Pg. 119 # 7 - 19 odd, 23 - 25 all (Solve and Check)
Quiz Thursday (1-step equations)

How to Play the Equations Game

#1 Eliminating numbers on the same side as the variable

- Constants eliminate with opposite sign *Need to make 0*
- Coefficients eliminate with division of the coefficient
- Denominators eliminate with multiplication of the denominator
- Fractional Coefficients eliminate with multiplication of the reciprocal

#2 Variable terms eliminate with opposite sign

#3 Two-Step Equations

- Eliminate the constant
- Eliminate the coefficient or denominator

#4 Entire side as a fraction

- Eliminate the denominator

#5 Distributive Property and Combining Like Terms Equations

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

#6 Variables on Both Sides Equations

- Eliminate a variable term
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Checking an Equation

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

Solve and check.

$$\begin{array}{r}
 x + 7 = 16 \\
 -7 \quad -7 \\
 \hline
 x = 9 \\
 x = 10
 \end{array}$$

Check $x + 7 = 16$
 $9 + 7 = 16$
 $16 = 16$

$x + 7 = 16$
 $10 + 7 = 16$
 $17 \neq 16$
 ~~$16 = 16$~~

$$\begin{array}{r}
 x - 7 = 16 \\
 +7 \quad +7 \\
 \hline
 x = 23
 \end{array}$$

$x - 7 = 16$
 $23 - 7 = 16$
 $16 = 16$

$$\begin{array}{r}
 -7 + x = 16 \\
 +7 \quad +7 \\
 \hline
 x = 23
 \end{array}$$

$-7 + x = 16$
 $-7 + 23 = 16$
 $16 = 16$

$$\begin{array}{r}
 16 = x - 7 \\
 +7 \quad +7 \\
 \hline
 23 = x
 \end{array}$$

$16 = x - 7$
 $16 = 23 - 7$
 $16 = 16$

$x = 24$ \leftarrow $-7 + x = 16$
 $-7 + 24 = 16$
 $17 \neq 16$

A check when you substitute the wrong answer.

Solve and check.

$$\begin{array}{r|l} \boxed{-5} + x = 4 & \\ +5 & +5 \\ \hline x = 9 & \end{array}$$

check

$$\begin{array}{l} -5 + x = 4 \\ -5 + 9 = 4 \\ 4 = 4 \end{array}$$

$$\begin{array}{r|l} x + \boxed{-5} = 4 & \\ +5 & +5 \\ \hline x = 9 & \end{array}$$

$$\begin{array}{l} x + (-5) = 4 \\ 9 + (-5) = 4 \\ 4 = 4 \end{array}$$

$$\begin{array}{r|l} 4 = \boxed{-5} + x & \\ +5 & +5 \\ \hline 9 = x & \end{array}$$

$$\begin{array}{l} 4 = -5 + x \\ 4 = -5 + 9 \\ 4 = 4 \end{array}$$

$$\begin{array}{r}
 x - 2.4 = 3.7 \\
 + 2.4 \quad + 2.4 \\
 \hline
 x = 6.1
 \end{array}$$

$$\begin{array}{l}
 x - 2.4 = 3.7 \\
 6.1 - 2.4 = 3.7 \\
 \quad \checkmark \\
 3.7 = 3.7
 \end{array}$$

$$\begin{array}{r}
 x + \frac{1}{2} = \frac{3}{4} \\
 - \frac{1}{2} \quad - \frac{1}{2} \\
 \hline
 x = \frac{1}{4}
 \end{array}$$

$$\begin{array}{l}
 x + \frac{1}{2} = \frac{3}{4} \\
 \frac{1}{4} + \frac{1}{2} = \frac{3}{4} \\
 \frac{3}{4} = \frac{3}{4}
 \end{array}$$