

12-5-17

Aim: SWBAT solve and check one-step multiplication and division equations.

Do Now: Check hw

HW: Pg. 124 # 9 - 25 odd, 30 (Solve and Check)
Quiz Thursday (1-step equations)

Pg. 119 # 7-19 odd, 23-25 all

Subst. because of sign, not operation

⑦ $t - 5 = 2$
 $\begin{array}{r} t - 5 = 2 \\ +5 \quad +5 \\ \hline t = 7 \end{array}$ check
 $t - 5 = 2$
 $7 - 5 \stackrel{?}{=} 2$
 $2 = 2$

⑨ $23 = 6 + n$ check
 $\begin{array}{r} 23 = 6 + n \\ -6 \quad -6 \\ \hline 17 = n \end{array}$ $23 = 6 + n$
 $23 \stackrel{?}{=} 6 + 17$
 $23 = 23$

⑪ $13 = d - 27$
 $\begin{array}{r} 13 = d - 27 \\ +27 \quad +27 \\ \hline 40 = d \end{array}$ check
 $13 = d - 27$
 $13 \stackrel{?}{=} 40 - 27$
 $13 = 13$

⑬ $-204 = m - 41$ check
 $\begin{array}{r} -204 = m - 41 \\ +41 \quad +41 \\ \hline -163 = m \end{array}$ $-204 = m - 41$
 $-204 \stackrel{?}{=} -163 - 41$
 $-204 = -204$

⑮ $p + 3.4 = 4.4$
 $\begin{array}{r} p + 3.4 = 4.4 \\ -3.4 \quad -3.4 \\ \hline p = 1.0 \\ p = 1 \end{array}$ check
 $p + 3.4 = 4.4$
 $1 + 3.4 \stackrel{?}{=} 4.4$
 $4.4 = 4.4$
drop the extra zero

$\boxed{-204 + 41}$ Diff: subst
 $\begin{array}{r} 264 \\ -41 \\ \hline 163 \end{array}$ $\boxed{-163 - 41}$ same: add
 $\begin{array}{r} 163 \\ +41 \\ \hline 204 \end{array}$

⑰ $3.777 + c = 3.977$
 $\begin{array}{r} 3.777 + c = 3.977 \\ -3.777 \quad -3.777 \\ \hline c = 0.2 \end{array}$ check
 $3.777 + c = 3.977$
 $3.777 + 0.2 \stackrel{?}{=} 3.977$
 $3.977 = 3.977$

$\begin{array}{r} 3.777 \\ +0.2 \\ \hline 3.977 \end{array}$

⑲ $\frac{2}{3} = d + \frac{1}{3}$
 $\begin{array}{r} \frac{2}{3} = d + \frac{1}{3} \\ -\frac{1}{3} \quad -\frac{1}{3} \\ \hline \frac{1}{3} = d \end{array}$ check
 $\frac{2}{3} = d + \frac{1}{3}$
 $\frac{2}{3} \stackrel{?}{=} \frac{1}{3} + \frac{1}{3}$
 $\frac{2}{3} = \frac{2}{3}$

(23) $m + (-20) = -12$
 $+20 \quad +20$

 $m = 8$

Add the opposite

check $m + (-20) = -12$
 $8 + (-20) = -12$
 $-12 = -12$

$-12 + 20$ Diff: sub
 $\frac{20}{-12}$
 $\frac{8}{8}$

$8 + (-20)$
 $\frac{-20}{8}$
 $\frac{12}{12}$

(24) $-2 = b + (-4)$
 $+4 \quad +4$

 $2 = b$

check

$-2 = b + (-4)$
 $-2 = 2 + (-4)$
 $-2 = -2$

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

(25) $r - (-36) = 5$
 $-36 \quad -36$

 $r = -31$

$5 - 36$ Diff: sub check
 $\frac{36}{-5}$
 $\frac{31}{31}$

check $r - (-36) = 5$
 $-31 - (-36) = 5$
 $5 = 5$

$\frac{+32}{3} = \frac{2}{5}$

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

*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.

$$\begin{array}{l}
 \cancel{3x} = \frac{15}{\cancel{3}} \text{ck/} \quad 3x = 15 \quad \cancel{-3x} = \frac{15}{\cancel{-3}} \quad -3x = 15 \\
 \quad \quad \quad 3 \cdot 5 \stackrel{?}{=} 15 \quad \quad \quad (-3)(-5) \stackrel{?}{=} 15 \\
 x = 5 \quad 15 = 15 \quad x = -5 \quad 15 = 15
 \end{array}$$

$$\begin{array}{l}
 \cancel{7x} = \frac{-14}{\cancel{7}} \text{ck/} \quad 7x = -14 \quad \cancel{-7x} = \frac{-14}{\cancel{-7}} \quad -7x = -14 \\
 \quad \quad \quad 7(-2) \stackrel{?}{=} -14 \quad \quad \quad -7(2) \stackrel{?}{=} -14 \\
 x = -2 \quad -14 = -14 \quad x = 2 \quad -14 = -14
 \end{array}$$

Solve and check.

$$\begin{array}{l} \cancel{7} \cdot \frac{x}{\cancel{7}} = 4 \cdot \frac{-7}{1} \quad \frac{x}{-7} = 4 \\ \frac{-28}{-7} = 4 \\ x = -28 \quad 4 = 4 \end{array} \quad \begin{array}{l} \cancel{7} \cdot \frac{x}{\cancel{7}} = -4 \cdot \frac{-7}{1} \quad \frac{x}{-7} = -4 \\ \frac{28}{-7} = -4 \\ x = 28 \quad -4 = -4 \end{array}$$

$$\begin{array}{l} \frac{4}{3} \cdot \frac{3}{4}x = 9 \cdot \frac{4}{3} \quad \text{check} \\ \frac{3}{4}x = 9 \\ x = 12 \quad \frac{3}{4} \cdot 12 = 9 \\ 9 = 9 \end{array} \quad \begin{array}{l} \frac{-4}{3} \cdot \frac{-3}{4}x = 9 \cdot \frac{-4}{3} \\ x = -12 \end{array}$$

$$\begin{array}{l} \text{*****} \quad -x = 12 \\ \frac{-x}{-1} = \frac{12}{-1} \\ x = -12 \end{array} \quad \begin{array}{l} -x = 12 \\ (-1)(-12) = 12 \\ 12 = 12 \end{array}$$

$$\begin{array}{l} -\frac{3}{4}x = 9 \\ \left(-\frac{3}{4}\right)(-12) = 9 \\ 9 = 9 \end{array}$$