

12-11-17

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

Do Now: Quiz

HW: Test next Tuesday ???

Pg. 131-132 # 18-21, 25-27, 31-34

$$\frac{3x}{5} = \frac{12 \cdot 5}{3}$$

$$x = 20$$

$$\frac{3x}{5} = \frac{3}{5}x$$

ck/  $\frac{3x}{5} = 12$

$$\frac{3 \cdot 20}{5} \stackrel{?}{=} 12$$

$$\frac{60}{5} \stackrel{?}{=} 12$$

$$12 = 12$$

$$\frac{2x}{3} = -8$$

$$x = -12$$

$$\frac{2(-12)}{3} \stackrel{?}{=} -8$$

$$\frac{-24}{3} \stackrel{?}{=} -8$$

$$-8 = -8$$

$$\frac{-2m}{5} = \frac{35 \cdot -2}{5}$$

$$m = -14$$

ck/  $\frac{-5m}{2} = 35$

$$\frac{-5(-14)}{2} \stackrel{?}{=} 35$$

$$\frac{70}{2} \stackrel{?}{=} 35$$

$$35 = 35$$

$$21 = 3x + 9$$

$$\frac{12}{3} = \frac{3x}{3}$$

$$4 = x$$

(B)

$$3(r+1) = 9$$

$$3r + 3 = 9$$

$$-3 \quad -3$$


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$$\frac{3r}{3} = \frac{6}{3}$$

$$r = 2$$

ck/  $3(r+1) = 9$

$$3(2+1) \stackrel{?}{=} 9$$

$$3 \cdot 3 \stackrel{?}{=} 9$$

$$9 = 9$$

$$4 = -1(z+11)$$

$$4 = -z - 11$$

$$+11 \quad +11$$


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$$\frac{15}{-1} = \frac{-z}{-1}$$

$$-15 = z$$

ck/  $4 = -1(z+11)$

$$4 \stackrel{?}{=} -1(-15+11)$$

$$4 \stackrel{?}{=} -1(-4)$$

$$4 = 4$$

$$6\left(\frac{1}{3} + h\right) = 20$$

$$2 + 6h = 20$$

$$-2 \quad -2$$


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$$\frac{6h}{6} = \frac{18}{6}$$

$$h = 3$$

ck/  $6\left(\frac{1}{3} + h\right) = 20$

$$6\left(\frac{1}{3} + 3\right) \stackrel{?}{=} 20$$

$$6\left(3\frac{1}{3}\right) \stackrel{?}{=} 20$$

$$20 = 20$$

$$6 \cdot 3\frac{1}{3}$$

$$\frac{20}{1} \cdot \frac{10}{3}$$

$$20$$

$$\begin{aligned} \textcircled{31} \quad \frac{4h-6}{8} &= \frac{-3 \cdot 8}{1 \cdot 1} \\ 4h-6 &= -24 \\ +6 &+6 \\ \hline 4h &= -18 \\ \frac{4h}{4} &= \frac{-18}{4} \\ h &= \frac{-9}{2} \end{aligned}$$

$$\begin{aligned} \text{ck/} \quad \frac{4h-6}{8} &= -3 \\ 24\left(\frac{-9}{2}\right)-6 &\stackrel{?}{=} -3 \\ \frac{-18-6}{8} &\stackrel{?}{=} -3 \\ \frac{-24}{8} &\stackrel{?}{=} -3 \\ -3 &= -3 \end{aligned}$$

$$\begin{aligned} \textcircled{32} \quad \frac{3a+4}{8} &= \frac{11 \cdot 5}{1 \cdot 1} \\ 3a+4 &= 55 \\ -4 &-4 \\ \hline 3a &= 51 \\ \frac{3a}{3} &= \frac{51}{3} \\ a &= 17 \end{aligned}$$

$$\begin{aligned} \text{ck/} \quad \frac{3a+4}{5} &= 11 \\ \frac{3 \cdot 17+4}{5} &\stackrel{?}{=} 11 \\ \frac{51+4}{5} &\stackrel{?}{=} 11 \\ \frac{55}{5} &\stackrel{?}{=} 11 \\ 11 &= 11 \end{aligned}$$

$$\begin{aligned} \textcircled{34} \quad \frac{2(h+12)}{5} &= 10 \\ \frac{5}{1} \cdot \frac{2h+24}{8} &= 10 \cdot \frac{5}{1} \\ 2h+24 &= 50 \\ -24 &-24 \\ \hline 2h &= 26 \\ \frac{2h}{2} &= \frac{26}{2} \\ h &= 13 \end{aligned}$$

$$\begin{aligned} \textcircled{33} \quad \frac{2w-3}{9} &= \frac{5 \cdot 9}{1 \cdot 1} \\ 2w-3 &= 45 \\ +3 &+3 \\ \hline 2w &= 48 \\ \frac{2w}{2} &= \frac{48}{2} \\ w &= 24 \end{aligned}$$

$$\begin{aligned} \text{ck/} \quad \frac{2w-3}{9} &= 5 \\ \frac{2(24)-3}{9} &\stackrel{?}{=} 5 \\ \frac{48-3}{9} &\stackrel{?}{=} 5 \\ \frac{45}{9} &\stackrel{?}{=} 5 \\ 5 &= 5 \end{aligned}$$

$$\begin{aligned} \text{ck/} \quad \frac{2(h+12)}{5} &= 10 \\ \frac{2(13+12)}{5} &\stackrel{?}{=} 10 \\ \frac{2(25)}{5} &\stackrel{?}{=} 10 \\ \frac{50}{5} &\stackrel{?}{=} 10 \\ 10 &= 10 \end{aligned}$$

## 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.

CLT

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

Variables on Both sides

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