Get out your homework and have it ready to check.

Classwork - Solving 2 Step Equations w/ Simplifying

Solve the following 2-step equations. Use the exact same process as we did on the notes. SHOW ALL WORK

A) $2x + 8 = 20$

$-8 \quad -8$

$\frac{2x}{2} = \frac{12}{2}$

$x = 6$

B) $-5x - 11 = 19$

$+11 \quad +11$

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

$x = -6$

C) $\frac{n}{3} + 9 = 15$

$-9 \quad -9$

$3 \cdot \frac{n}{3} = 6 \cdot 3$

$n = 18$

D) $-2 + 7j = 26$

$+2 \quad +2$

$\frac{7j}{7} = \frac{28}{7}$

$j = 4$

E) $\frac{a}{5} - 13 = -10$

$+13 \quad +13$

$5 \cdot \frac{a}{5} = 3 \cdot 5$

$a = 15$

F) $15 - 2b = 23$

$-15 \quad -15$

$\frac{-2b}{-2} = \frac{8}{-2}$

$b = -4$

G) $6.5y - 10 = 42$

$+10 \quad +10$

$6.5y = 52$

$\frac{6.5y}{6.5} = \frac{52}{6.5}$

$y = 8$

H) $\frac{x}{2} + 16 = 4$

$-16 \quad -16$

$2 \cdot \frac{x}{2} = -12 \cdot 2$

$x = -24$

I) $19 - k = -24$

$-19 \quad -19$

$-k = -43$

$\frac{-k}{-1} = \frac{-43}{-1}$

$k = 43$

J) $37 = -8x + 13$

$-13 \quad -13$

$24 = -8x$

$\frac{24}{-8} = \frac{-8x}{-8}$

$-3 = x$

K) $-79 = -11x - 2$

$+2 \quad +2$

$-77 = -11x$

$\frac{-77}{-11} = \frac{-11x}{-11}$

$7 = x$

L) $\frac{n}{8} - 9 = -5.25$

$+9 \quad +9$

$8 \cdot \frac{n}{8} = 3.75 \cdot 8$

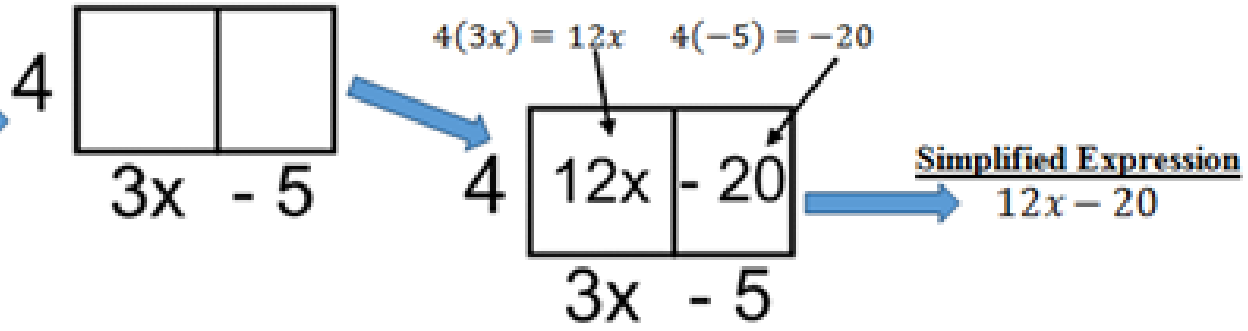
$n = 30$

Distributive Property Review

The distributive property describes a situation in which a number is being multiplied by an entire expression inside a parenthesis. The multiplication of a number is being shared (distributed) to every term inside the parenthesis.

Example

$4(3x-5)$

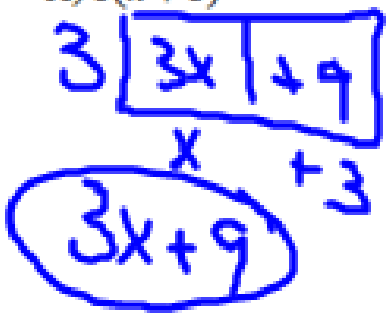


Simplified Expression

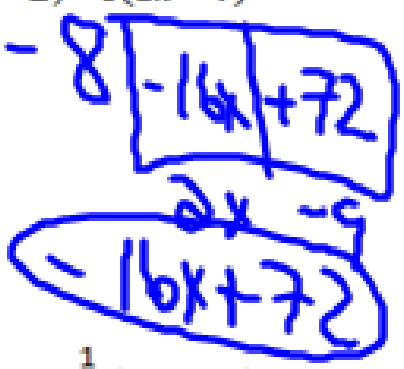
$12x-20$

Warm Up: Use the distributive property on the expressions below. Use an area model for the factored part of the expression to find the expanded form of the expression. **Rewrite your simplified expression outside your area model.**

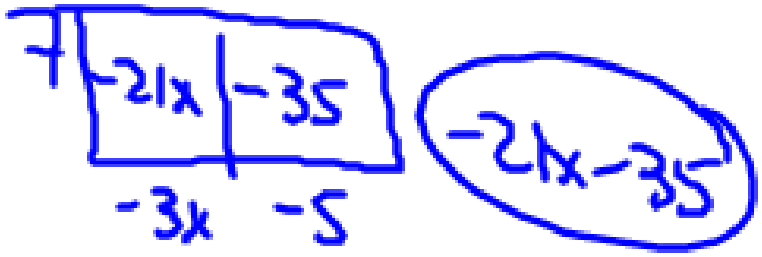
A) $3(x+3)$



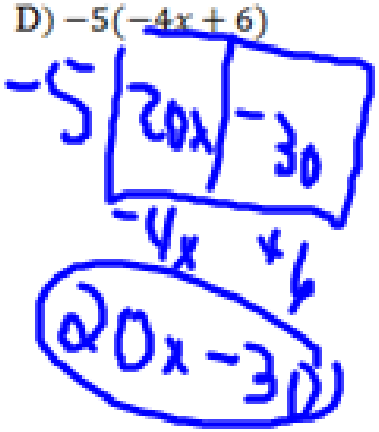
B) $-8(2x-9)$



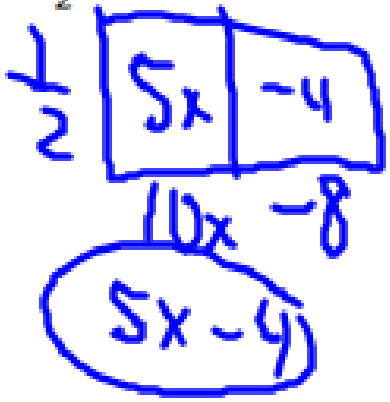
C) $7(-3x-5)$



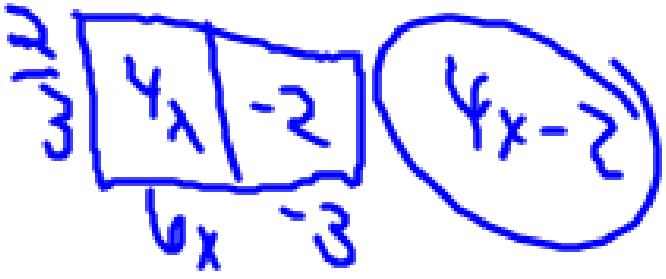
D) $-5(-4x+6)$



E) $\frac{1}{2}(10x-8)$



F) $\frac{2}{3}(6x-3)$



Simplifying Before Solving Two-Step Equations

Just like with one-step equations, the expressions on both sides of the equal sign must be completely simplified. Remember the rule: **SIMPLIFY BEFORE YOU SOLVE.**

Simplifying:

1) Identify if the equation needs to be simplified.
   - Distributive Property or Combining Like Terms
2) Simplify both the left and right side of the equation by using the distributive property or combing like terms.

Rewrite Simplified Equation

Solving Process:

3) Look at what operations are acting on your variable
4) Undo the multiple operations that are acting on your variable
   First: Undo Addition or Subtraction
   Second: Undo Multiplication or Division
5) Find the value of 1x
6) Check your answer

Example

$3(x+2) = 15$

3	3x	+6
	x	+2

$3x + 6 = 15$

$-6 \quad -6$

$\frac{3x}{3} = \frac{15}{3}$

$1x = 5$

For the following problem, you will be given a two-step equation that is not simplified. Follow the instructions on the previous page and SIMPLIFY THEN SOLVE until undo the operations acting on x until you find the value of 1x or x.

Solve for x $4(2x-3)=28$

Simplify the Equation→ 4 | $8x$ | -12 ; $2x$ -3

Rewrite Equation→ $8x-12=28$

Solve the Equation→ $+12 \quad +12$

$\frac{8x}{8}=\frac{40}{8}$

$1x=5$

$4(2\cdot5-3)=28$

$4(10-3)=28$

$4(7)=28$

$28=28$ ✓

Solve for x $\frac{1}{4}(x+12)=-3$

Simplify the Equation→ $\frac{1}{4}$ | $\frac{1}{4}x$ | $+3$; x $+12$

Rewrite Equation→ $\frac{1}{4}x+3=-3$

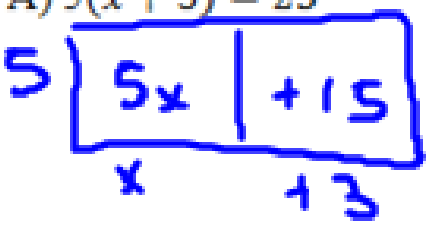
Solve the Equation→ $-3 \quad -3$

$4\cdot\frac{1x}{4}=-6\cdot4$

$1x=-24$

Simplify and THEN solve the following two-step equations. Make sure to show inverse operations on BOTH sides and WORK DOWN. SHOW ALL WORK.

A) $5(x+3)=25$



$5x+15=25$

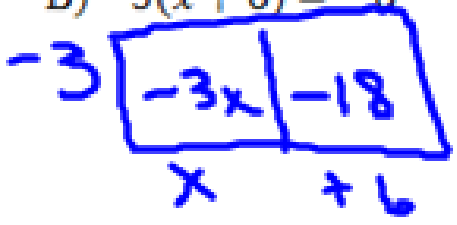
$-15\quad -15$

$5x=10$

$\frac{5x}{5}=\frac{10}{5}$

$x=2$

B) $-3(x+6)=-6$



$-3x-18=-6$

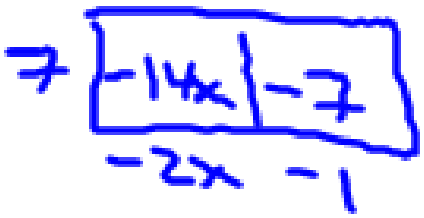
$+18\quad +18$

$-3x=12$

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

$x=-4$

C) $7(-2x-1)=7$



$-14x-7=7$

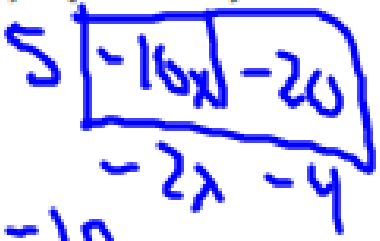
$+7\quad +7$

$-14x=14$

$\frac{-14x}{-14}=\frac{14}{-14}$

$x=-1$

D) $5(-2x-4)=50$



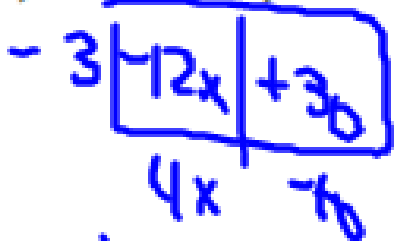
$-10x-20=50$

$+20\quad +20$

$\frac{-10x}{-10}=\frac{70}{-10}$

$x=-7$

E) $-3(4x-10)=6$



$-12x+30=6$

$-30\quad -30$

$\frac{-12x}{-12}=\frac{-24}{-12}$

$x=2$

F) $-4(-x-2)=24$

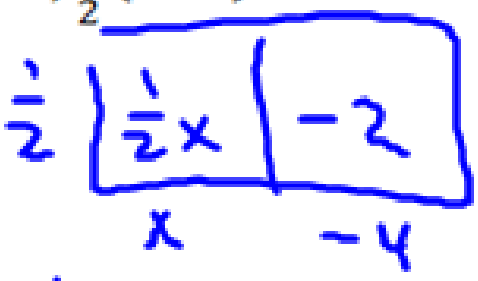
$4x+8=24$

$-8\quad -8$

$\frac{4x}{4}=\frac{16}{4}$

$x=4$

G) $\frac{1}{2}(x-4)=5$



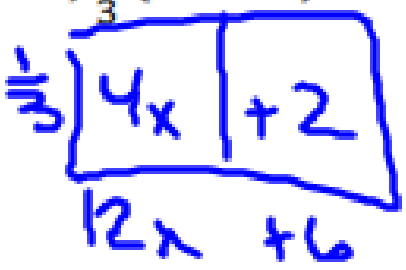
$\frac{1}{2}x-2=5$

$+2 \quad +2$

$2\cdot\frac{1}{2}x=7\cdot 2$

$1x=14$

H) $\frac{1}{3}(12x+6)=30$



$4x+2=30$

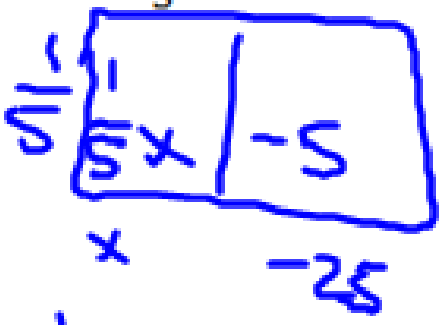
$-2 \quad -2$

$4x=28$

$\frac{4}{4} \quad \frac{28}{4}$

$x=7$

I) $\frac{1}{5}(x-25)=-2$



$\frac{1}{5}x-5=-2$

$+5 \quad +5$

$5\cdot\frac{1}{5}x=3\cdot 5$

$1x=15$