Solving Multi-Step Equations

Examples	Warm-up: Try 1) $\frac{1}{2}(40m + 10) = 15$	$10y - 12y = 3y + 5$	$6(5c - 3) = 3(-4 + 9c)$	$-\frac{3}{4}(12x - 8) = -2x + 3x - 4$
Step 1: Distribute	$20m + 5 = 15$		$30c - 18 = 3(-4 + 9c)$ $30c - 18 = -12 + 27c$	$-9x + 6 = -2x + 3x - 4$ $-9x + 6 = x - 4$
Step 2: Combine like terms OR use inverse operations	$-5 \quad -5$ $20m = 10$ $\frac{20m}{20} = \frac{10}{20}$	$-2y = 3y + 5$ $-3y \quad -3y$	$+12 \quad +12$ $30c = 27c + 6$ $-27c \quad -27c$	$+9x \quad +9x$ $6 = 10x - 4$ $+4 \quad +4$
Step 3: Isolate variable	$m = \frac{1}{2}$	$\frac{-5y}{-5} = \frac{5}{-5}$ $y = -1$	$\frac{3c}{3} = \frac{6}{3}$ $c = 2$	$\frac{10}{10} = \frac{10x}{10}$ $x = 1$
Step 4:				
Step 5:				
Answer	$m = \frac{1}{2}$			

Solving Multi-Step Inequalities

Examples	$30-6a<-3(5+7a)$	$\frac{x}{-6}-8\leq-12$	$-5(2b+7)+b<-b-11$	2. $42\geq\frac{-7(v-9)}{2}$
Step 1:	$30-6a<-15-21a$ (+15, +15)	$\frac{x}{-6}\leq-4$ (·−6, ·−6)	$-10b+23<24$	$\frac{84}{-7}\geq\frac{-7(v-9)}{-7}$ Divide by negative, flip sign
Step 2:	$45-6a<-21a$ (+6a, +6a)	$x\leq 24$	$\frac{-8b}{-8}<\frac{24}{-8}$	$-12\leq v-9$ (+9, +9)
Step 3:	$\frac{45}{-15}<\frac{-15a}{-15}$		$b>-3$	$3\leq v$
Step 4:	$-3>a$			
Step 5:				
Answer				