Name: Class copy

Writing Equations

Ex. The length of a rectangle is 3 cm more than twice the width. The perimeter is 60 cm.

* Use a "Guess and Check table" to write an equation representing the situation.

1) Draw a picture/summarize the situation in your own way.

length: three more than twice width

width | | P = 60 cm

2) Find the unknown or x... Ask "what is the thing I don't know or can't figure out from clues?" (The width is x.)

3) set up a table to "build" the equation. (Everything in terms of x).

Guess width x	Length (2x+3)	Perimeter 2w + 2l	Check perimeter
		2x + 2(2x+3) = 60	

EQUATION simplified

$2x + 4x + 6 = 60$

$6x + 6 = 60$

↓ we will solve soon... not yet ☺.

More writing Equations

Ex. Elisa sold 110 tickets for the football game. Adult tickets cost $2.50 and student tickets cost $1.10. She collected $212.

Write an equation representing the problem.

# of S	# of A	Student Value (1.10)(S)	Adult value (2.50)(A)	Total value	Check = $212
x	(110−x)	1.10x	2.50(110−x)		

DP $1.10x + 2.50(110-x) = 212$

CLT $1.10x + 275 - 2.5x = 212$

$-1.4x + 275 = 212$

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Solving Simple Equations

* The goal is to get all "x terms" to one side of the equal sign.
* Use "inverse operations" to undo operations
* "BS" or Both Sides rule → Do same thing to both sides of equal sign. ← remember where = is

Ex. $3x + 1 = -8 + x$

$-x \quad\quad -x$

$2x + 1 = -8$

$-1 \quad\quad -1$

$\frac{2x}{2} = \frac{-9}{2}$

$x = -4.5$

"undoing +5"

Ex. $2x + 5 = 17$

$-5 \quad\quad -5$

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

$\frac{2}{2} = 1$

$x = 6$

Solving Equations with Parentheses

$3(2x-7) = 6x + 17 + x$

$6x - 21 = 7x + 17$ ←

$-6x \quad\quad -6x$

$-21 = x + 17$

$-17 \quad\quad -17$

$-38 = x$ ✓

* You must apply Distributive property and combine like terms before solving.

$3(2(-38) - 7) = 6(-38) + 17 + (-38)$

$-249 = -249$

Solving equations with Fractions

$\frac{3}{4}x + 2 = -7$

$-2 \quad\quad -2$

$\frac{9}{3} \cdot \frac{3}{4}x = -9 \cdot \frac{4}{3}$

$\frac{12}{12}x = \frac{-36}{3}$

$x = -12$

* Multiply both sides by reciprocal of $\frac{3}{4}$ ... $\frac{4}{3}$.

OR $.75x + 2 = -7$

$-2 \quad\quad -2$

$\frac{.75x}{.75} = \frac{-9}{.75}$

change fraction to decimal

$x = -12$