

Properties of Equality

"What you do to one side of the equation, you must do to the other."

THE GOAL

To Isolate the
Variable.

The way we solve a variable equation is to use "Inverse Operations"
(opposite math)

ADDITION PROPERTY

$$t - 5 = 26$$

$$t - 5 + 5 = 26 + 5$$

$$t = 31$$

SUBTRACTION PROPERTY

$$x + 8 = 18$$

$$x + 8 - 8 = 18 - 8$$

$$x = 10$$

Division Property

$$\frac{9y}{9} = \frac{27}{9}$$

Identity
Property

$$1y = 3$$

$$y = 3$$

Multiplication Property

$$\frac{7x}{7} = 5 \times 7$$

$$1x = 35$$

$$x = 35$$

4/17 Chapter 7-1
SOLVING 2-Step
Equations.

$$\frac{a}{3} + 9 = 13$$

STEP 1 $\frac{a}{3} + 9 - 9 = 13 - 9$

simplify $\frac{a}{3} = 4$

STEP 2

~~$\frac{a}{3} = 4.3$~~

$$a = 12$$

DBL
✓ $\frac{12}{3} + 9 = 13$ ✓

$$3x + 1 = 14$$

$$3x + 1 - 1 = 14 - 1$$

$$\frac{3x}{3} = \frac{13}{3}$$

$$x = 4.\overline{33}$$

$$\frac{d}{3} - 10 = 5$$

$$\frac{d}{3} - 10 + 10 = 5 + 10$$

$$\frac{3d}{3} = 15 \times 3$$

$$d = 45$$

$$\frac{3n}{8} + \frac{3}{8} = \frac{15}{16}$$

$$\frac{3n}{8} + \frac{3}{8} = \frac{15}{16} - \frac{6}{16}$$

$$\frac{3n}{8} = \frac{9}{16}$$

$$\frac{3n}{8} \cdot \frac{8}{8} = \frac{9}{16} \cdot \frac{8}{8}$$

$$n \cdot \frac{3}{1} = \frac{9}{2}$$

$$n \cdot 1 = \frac{27}{2}$$