REVIEW: Properties of Equality

Name _____

Key Concept and Vocabulary

Addition Property of Equality:

If $a = b$, then $a + c = b + c$.

Subtraction Property of Equality:

If $a = b$, then $a - c = b - c$.

Multiplication Property of Equality:

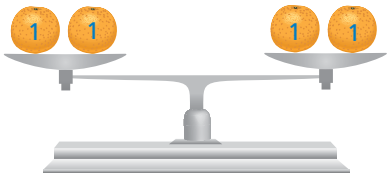
If $a = b$, then $a \cdot c = b \cdot c$.

Division Property of Equality:

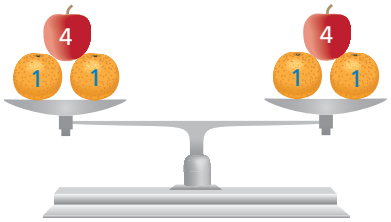
If $a = b$, then $a \div c = b \div c$, $c \neq 0$.

Visual Model

If two sides of a scale weigh the same, the scale balances.



If you add or subtract the same amount on each side of the scale, the scale still balances.



Skill Example

1. Solve $\frac{x}{4} - 3 = 7$.

$\frac{x}{4} - 3 = 7$	Write the equation.
$+3 \quad +3$	Addition Property of Equality
$\frac{x}{4} = 10$	Simplify.
$\frac{x}{4} \cdot 4 = 10 \cdot 4$	Multiplication Property of Equality
$x = 40$	Simplify.

Application Example

2. Ski rental is \$45 for 3 hours and \$10 for each additional hour. You pay \$75. Write and solve an equation to find the number of additional hours you rented the skis.

$10h + 45 = 75$	Write the equation.
$-45 \quad -45$	Subtraction Property of Equality
$10h = 30$	Simplify.
$\frac{10h}{10} = \frac{30}{10}$	Division Property of Equality
$h = 3$	Simplify.

∴ You rented the skis for 3 additional hours.

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Check your answers at BigIdeasMath.com.

Solve the equation. Identify the properties used.

3. $2y + 9 = 13$

$2y =$ 4 Subt. Prop. of Eq.

$y =$ 2 Div. Prop. of Eq.

4. $\frac{n}{4} - 2 = 10$

$\frac{n}{4} =$ 12 Add. Prop. of Eq.

$n =$ 48 Mult. Prop. of Eq.

5. **COMPUTER** You pay \$87 to get your computer repaired. You are charged \$37 for parts and \$20 per hour of labor. Write and solve an equation to find the number of labor hours you were charged. $20h + 37 = 87$; $h = 2.5$ hours