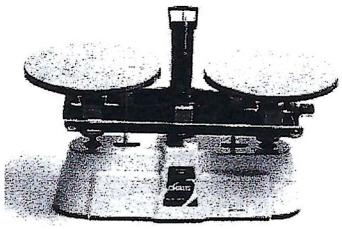
Name Key
Mrs. Roumbos

Date_____
8R Period_____

Solving Equations by Subtracting or Adding

A mathematical sentence with an equal sign is called an **equation.** Just like a scale, both sides of the equation must be equal for it to balance.



In an equation like $x + 2 = 5$, a value of the variable that makes the equation true is called a **solution.**

Addition Property of Equality

If you add the same number to each side of an equation, the two sides remain equal.

Subtraction Property of Equality

If you subtract the same number on each side, the two sides remain equal.

*You can use addition to "undo" subtraction
*You can use subtraction to "undo addition } opposite / Inverse

*Goal: to isolate the variable.

Solve the following equations. Check your answer.

1) $a - 15 = -9$
$+15 \quad +15$
$a = 6$
Addition Prop of Equality

2) $k + 3 = 0$
$-3 \quad -3$
$k = -3$
Subtraction Prop of Equality

3) $x + 6 = \frac{1}{2}$
$-6 \quad -6$
$x = -5\frac{1}{2}$
Sub prop of Equality

4) $a - 3.75 = 9.30$
$+3.75 \quad +3.75$
$a = 13.05$
Addition prop of Equality

5) $-6 = v - 8$
$+8 \quad +8$
$2 = v$
$v = 2$
Addition Prop of Equality

*6) $-9 = x + (-3)$
$-9 = x - 3$
$+3 \quad +3$
$-6 = x$
or
$x = -6$
Addition Prop of Equality

7) $x - 6 = -18$

$+6 \quad +6$

$x = -12$

Check

$x - 6 = -18$

$(-12) - 6 = -18$

$-18 = -18$ ✓

8) $r + 9 = 15$

$-9 \quad -9$

$r = 6$

Check

$r + 9 = 15$

$(6) + 9 = 15$

$15 = 15$ ✓

9) $n - 19 = 26$

$+19 \quad +19$

$n = 45$

Check

$n - 19 = 26$

$(45) - 19 = 26$

$26 = 26$ ✓

10) $9 + k = 27$

$-9 \quad -9$

$k = 18$

Check

$9 + k = 27$

$9 + (18) = 27$

$27 = 27$ ✓

11) $-14 = 8 + j$

$-8 \quad -8$

$-22 = j$

Check

$-14 = 8 + j$

$-14 = (-22) + j$

$-14 = -14$ ✓

12) $14 = p - 27$

$+27 \quad +27$

$41 = p$

Check

$14 = p - 27$

$14 = (41) - 27$

$14 = 14$ ✓

13) $8.17 + d = 14.2$

$-8.17 \quad -8.17$

$d = 6.03$

Check

$8.17 + d = 14.2$

$8.17 + 6.03 = 14.2$

$14.2 = 14.2$ ✓

14) $g - \frac{1}{4} = \frac{5}{8}$

$+\frac{1}{4} \quad +\frac{1}{4}$

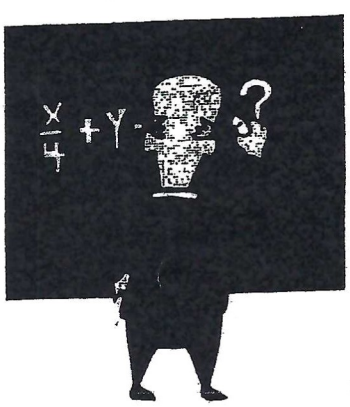
$g = \frac{7}{8}$

Check

$g - \frac{1}{4} = \frac{5}{8}$

$\left(\frac{7}{8}\right) - \frac{1}{4} = \frac{5}{8}$

$\frac{5}{8} = \frac{5}{8}$ ✓



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