Solving One-Step Equations Using Integers

Term	Definition	Visual
Inverse Operations	Opposite operations that **undo** each other.	+ and - addition & subtraction x and ÷ multiplication & division
Addition Property of Equality	If you add the same # to both sides of an equation, the sides stay equal (=)	5 = 5 5 + 2 = 5+ 2
Subtraction Property of Equality	If you subtract the same # from both sides of an equation, the sides stay equal (=)	7 = 7 7-6 = 7-6
Multiplication Property of Equality	If you multiply both sides of an equation by the same #, the sides stay equal (=)	2 = 2 2(5) = 2(5)
Division Property of Equality	If you divide both sides of an equation by the same #, the sides stay equal (=)	4 = 4 $\frac{4}{2} = \frac{4}{2}$ 2 = 2

Rules to Solving Equations

Your goal is to get the **Variable** alone by itself on **one** side of the equation.
(In other words, you are trying to **isolate** the variable)

When you are solving equations, you MUST use **Inverse Operations** to isolate the variable.

Whatever you do to **One side** of an equation, you must do to the **other side** of the equation.

(In other words, you must keep the equation **balanced** /**equal** .)

Solving an equation is like lifting weights….

If you **add** or **subtract** weight from one side of the barbell, you must **add** or **subtract** the same amount of weight from the other side of the barbell to keep it balanced.

Solve the equations below AND check your solution

$y + 14 = 20$

$-14 = -14$

$y = 6$

Check:

$6 + 14 = 20$ ✓

$x - 3 = -8$

$+3 = +3$

$x = -5$

Check:

$-5 - 3$

$-5 + (-3) = -8$ ✓

$z - 4 = 16$

$+4 = +4$

$z = 20$

Check:

$20 - 4 = 16$ ✓

$b + 25 = -25$

$- 25 = -25$

$b = -25 - 25$

$b = -25 + (-25)$

$b = -50$

Check:

$-50 + 25 = -25$ ✓

$d - 5 = 7$

$+5 = +5$

$d = 12$

Check:

$12 - 5 = 7$ ✓

Solve the equations below AND check your solution

$\frac{8t}{8} = \frac{48}{8}$

$t = 6$

Check:
$8(6) = 48$✓

$\frac{-30}{-6} = \frac{-6x}{-6}$

$x = 5$

Check:
$-30 = -6(5)$✓

$\frac{-2y}{-2} = \frac{12}{-2}$

$y = -6$

Check:
$-2(-6) = 12$✓

$6 \cdot \frac{k}{6} = 10 \cdot 6$

$k = 60$

Check:
$\frac{60}{6} = 10$✓

$3 \cdot 20 = \frac{x}{3} \cdot 3$

$x = 60$

Check:
$20 = \frac{60}{3}$✓

$-5 \cdot \frac{y}{-5} = -12 \cdot -5$

$y = 60$

Check:
$\frac{60}{-5} = -12$✓