Tim is 3 and he is getting ready to go play in the snow.
When he gets ready he follows the same process each day.

When he goes inside he does eveything in reverse.
What is that process?

1 Put on ski-pants → 2 put on coat → 3 put on boots

3 → 2 → 1

Section 6.1

Solving Equations by Using Inverse Operations

Inverse operations:

is to do the opposite (undo or reverse each other's result)

What is the opposite of Addition(+)? Subraction (-)

What is the opposite of Multiplication(x)? Division (÷)

Let's think

You have to show work!

$x + 5 = 8$ -5 -5

$x = 3$

a) $x - 8 = 20$ $+8$ $+8$

$X = 28$

b) $x - 4 = 13$ $+4$ $+4$

$X = 17$

c) $-9 + x = 12$ $+9$ $+9$

$X = 21$

What Do You Notice?

d) $\frac{8x}{8} = \frac{32}{8}$

$x = 4$

e) $\frac{4x}{4} = \frac{24}{4}$

$x = 6$

f) $\frac{-9x}{-9} = \frac{81}{-9}$

$x = -9$

g) $\frac{x}{8} = 2$ ×8

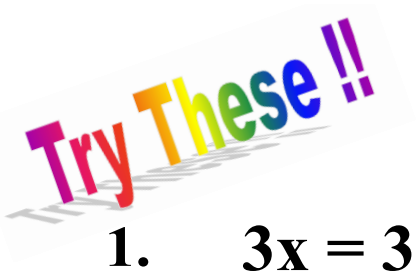
$x = 16$

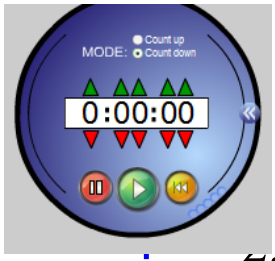
h) $\frac{x}{4} = -3$ ×4

$x = -12$

i) $\frac{x}{9} = 4$ ×9

$x = 36$



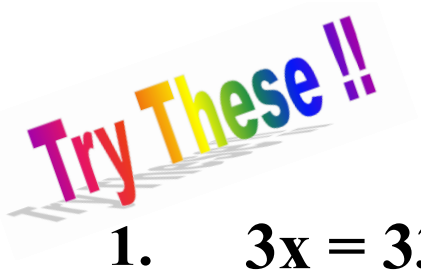


1. $3x = 33$

2. $x - 10 = 20$

3. $16 + x = 4$

4. $-x = 12$



1. $3x = 33$

$$\frac{3x}{3} = \frac{33}{3}$$

$$x = 11$$

2. $x - 10 = 20$

$$x - 10 + 10 = 20 + 10$$

$$x = 30$$

3. $16 + x = 4$

$$16 - 16 + x = 4 - 16$$

$$x = -12$$

4. $-x = 12$

$$\frac{-1x}{-1} = \frac{12}{-1}$$

$$x = -12$$

The Two-Step Equation

a) $2x + 3 = 14$ -3

$\frac{2x}{2} = \frac{11}{2}$

$x = \frac{11}{2}$

b) $5x - 10 = 50$ $+10$

$\frac{5x}{5} = \frac{60}{5}$

$x = 12$

The Two-Step Equation

a) $8x - 2 = 14$ (+2)

$\frac{8x}{8} = \frac{16}{8}$

$x = 2$

b) $9x + 3.4 = 30.1$ (−3.4)

$\frac{9x}{9} = \frac{26.7}{9}$

$x = 2.96$

c) $14 - 7x = 42$ (−14)

$\frac{-7x}{-7} = \frac{38}{-7}$

$x = \frac{38}{-7}$

The Two-Step Equation

d) $\frac{x}{5} - 5 = 10$

$\times 5 \quad \times 5$

$x - 25 = 50$

$+25$

$x = 75$

e) $\frac{x}{2} + 3 = 5$

$\times 2 \quad \times 2$

$x + 6 = 10 - 6$

$x = 4$

f) $8 = \frac{x}{3} - 4$

$\frac{x}{3} - 4 = 8$

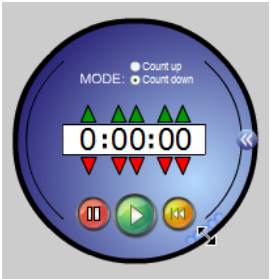
$\times 3 \quad \times 3$

$x - 12 = 24$

$+12$

$x = 36$

You try



1) $-2w + 6 = -30.8$

2) $\frac{b}{-5} - 7 = 4$

3) $7 = \frac{n}{2} - 1$

1) $-2w + 6 = -30.8$ -6

$$-2w = -30.8 - 6$$
$$-2w = -36.8$$
$$\frac{-2w}{-2} = \frac{-36.8}{-2}$$
$$w = 18.4$$

2) $\frac{b}{-5} - 7 = 4$ $\times -5$

$$b + 35 = -20$$
$$b = -20 - 35$$
$$b = -55$$

3) $7 = \frac{n}{2} - 1$

Rewrite!

$$\frac{n}{2} - 1 = 7 \quad (\times 2 \text{ to each term})$$

$$n - 2 = 14$$

$$n = 14 + 2$$

$$n = 16$$

Ultimate Question!!

Answer is a Decimal

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

$$\frac{x}{2}\overset{\times 6}{} + \frac{4}{3}\overset{\times 6}{} = 3\overset{\times 6}{}$$

$$\frac{6x}{2} + \frac{24}{3} = 18$$

$$3x + 8 = 18$$

$$3x + 8 = 18$$

$$3x = 18 - 8$$

$$3x = 10$$

$$x = 3.\overline{3}$$

Class Work
and
Finish for Homework

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