M8 - 10.1 - "$\pm x \pm a = b$" AlgebranNotes

Answer should say $x =$ ___

Solve for x, *by subtracting to both sides*.

$x + 5 = 9$

$x + 5 = 9$
$\quad -5 \quad -5$ Subtract 5 from both sides

Both sides: The Left Hand Side and the Right Hand Side of the Equal Sign

$x + \cancel{5} = 9$ Cross it off
$\quad \cancel{-5} \quad -5$

$\boxed{5 - 5 = 0}$

$x = 9 - 5$

$x = 4$ Circle Answer

Check Answer

$x + 5 = 9$
$(4) + 5 = 9$
$9 = 9$ ✓

Question
Substitute with Brackets
Left Hand Side Must Equal Right Hand Side

Short Forms

$x + 5 = 9$
$\quad -5 \quad -5$
$x = 4$

$x + \cancel{5} = 9$
$x = 9 - 5$
$x = 4$

Solve for x, *by adding to both sides*.

$x - 3 = 7$

We are always doing the opposite operation to both sides of the equation

$x - 3 = 7$
$\quad +3 \quad +3$ Add 3 to both sides

$x - \cancel{3} = 7$
$\quad \cancel{+3} \quad +3$

$x = 7 + 3$ Cross it off

$x = 10$

Check Answer

$x - 3 = 7$
$(10) - 3 = 7$
$7 = 7$ ✓

Solve for x

$x - 3 = 7$
$\quad -7 \quad -7$
$x - 10 = 0$
$\quad +10 \quad +10$
$x = 10$

If you accidentally get it equal to zero just keep going!

Short Forms

$x - \cancel{3} = 7$
$\quad \cancel{+3} \quad +3$
$x = 10$

$x - \cancel{3} = 7$
$x = 7 + 3$
$x = 10$

Solve for x, *by subtracting to both sides. Then Dividing by* -1.

$-x + 2 = 5$

$-x + \cancel{2} = 5$
$\quad \cancel{-2} \quad -2$ Subtract 2 from both sides
$-x = 3$

$\frac{\cancel{-x}}{\cancel{-1}} = \frac{3}{-1}$ Divide both sides by -1. Cross it off

$x = -3$

Check Answer

$-x + 2 = 5$
$-(-3) + 2 = 5$
$+3 + 2 = 5$
$5 = 5$ ✓

Substitute with Brackets!!!

Alternate Solution

$-x + 2 = 5$
$+x \quad\quad + x$ Add x to both sides
$2 = 5 + x$
$-5 \quad -5$ Subtract 5 from both sides
$-3 = x$ Divide both sides by -1

$x = -3$ Mirror

$\boxed{5 + x = 5 + x}$ Can't add unlike terms!