

Warm-up: Solve each equation.

1. $2x + 14 = 2$
 $\frac{2x}{2} + \frac{14}{2} = \frac{2}{2}$
 $x + 7 = 1$
 $x = -6$

2. $6x + 12 = 2$
 $6x = -10$
 $x = -\frac{5}{3}$

3. $7 + x = 10$
 $x = 3$

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2-STEP EQUATIONS

MULTIPLYING
DIVISION
VARIABLES
SUBTRACTION
ADDITION
EXPONENTS
NUMBERS
PERIODS
INVERSE OPERATION

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Rules for solving two-step equations

1. You want to isolate the variable (meaning get the variable by itself)
2. You need to **UNDO** the operations being done to the variable **AND** order matters!
 - a. First, undo addition or subtraction
 - b. Second, undo multiplication or division
3. Don't forget, whatever you do to one side of the equation has to be done to the other side

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Example 1: Solve each two step equation. Check your solution.

a. $3x + 7 = 19$
 $3x = 12$
 $x = 4$

b. $\frac{b}{2} - 9 = 11$
 $\frac{b}{2} = 20$
 $b = 40$

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Example 1: Solve each two step equation. Check your solution.

c. $9 = -2n + 3$
 $-3 = -2n$
 $3 = n$

d. $-21 = \frac{1}{2}x - 11$
 $-10 = \frac{1}{2}x$
 $-20 = x$

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Checkpoint: Solve each two-step equation. Check your solution.

1. $\frac{r}{4} - 12 = -5$
 $\frac{r}{4} = 7$
 $r = 28$

2. $4 = 5x + 3$
 $1 = 5x$
 $\frac{1}{5} = x$

3. $5h + 4 = 9$
 $5h = 5$
 $h = 1$

4. $\frac{h+6}{5} = 2 \times 5$
 $h+6 = 10$
 $h = 4$

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Example 2: Combine like terms and solve the equation.

a. $4a + 3a = 63$

$7a = 63$

$a = 9$

b. $-12 = 9x - 6x$

$-12 = 3x$

$-4 = x$

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Example 3: To rent a booth at the county fairgrounds costs \$42 per day plus a one-time equipment fee of \$85. Find the number of days Mr. Jones rented a booth if he paid a total of \$337.

$42x + 85 = 337$

-85

$42x = 252$

$x = 6$

6 days

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Partner Check: Solve the equation. Check your solution.

4. Kim has a job where she makes \$8 per hour plus tips. Yesterday, Kim made \$53 dollars, \$13 of which was from tips. How many hours did she work?

$8x + 13 = 53$

4. You helped a friend move a short distance recently. The friend rented a truck for \$15 per day and a dolly for \$5. Your friend paid a total of \$80 for the rental. How long did your friend rent the truck?

$15x + 5 = 80$

5 days

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