

Writing Equations

equation

is

Numeric Equations


Algebraic Equations

$2(3)=6$ $3-1=2$ $5+2=7$ $\frac{6}{3}=2$	$2a=6$ $3-c=2$ $y+2=7$ $\frac{6}{x}=2$
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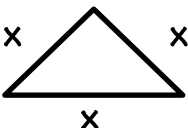
***Remember the steps for writing expressions?

They are the same when writing equations. Treat the _____ sign like an operation word by _____ it. Remember to flip flop or switch the order when you read _____ than, _____ than, _____ than, or _____ to.

TOGETHER:

Variable	Phrase	Equation
n	8 more than a number is 17	
x	the difference of a number and 4 is 8	
y	27 is three times a number	
	Perimeter of the rectangle is 32cm 	You spend \$ 16 on 3 notebooks and x binders. Notebooks cost \$ 2 each and binders cost \$ 5 each.

PAUSE & TRY:

Variable	Phrase	Equation
b	half of a number is 14	
c	five less than the number is eight	
p	The product of a number and 3 is 15	
	Perimeter of the rectangle is 20 in. 	The perimeter of a rectangular yard is 320 feet. The width of the yard is 60 feet. If you want to put a fence around the yard, how would you find the distance in feet for the length of the yard? Perimeter is found by adding all four sides together.

CHECKING SOLUTIONS

evaluate

STEPS:

1. _____ the given solution.
2. Plug in the given value for the _____.
(x=?)
3. _____ this expression.
4. If both sides are _____ or equal, then the given value _____ a solution. If they DO NOT _____ each other, then the given value is _____ a solution.

EX: After solving the equation,

YOU SAID

$$12 - n = 15; \quad n = 6$$

Try Together:

- ① $2 + x = 5$; You said $x = 3$
- ② $4x + x = 9$; You said $x = 4$
- ③ $3(x - 1) = 30$; You said $x = 11$

Pause and Try:

- ① $x - 2 = 4$; You said $x = 5$
- ② $2x + 2x = 8$; You said $x = 2$
- ③ $2(x + 10) = 28$; You said $x = 4$

SOOLVE ADD/SUBTRACT EQUATIONS

addition property of equality

subtraction property of equality

inverse operations

EX: $5 + x = -23$

Check the Solution

The GOAL in solving any equation is to get the

_____ on one side all by itself.

STEPS:

1. Separate the two sides of the _____ by drawing railroad tracks on each side of the _____ sign.
2. _____ the variable and everything _____ to it.
3. To get the variable by itself, use the _____ operation.
4. If you do something to one side of the equation, you _____ do the **SAME** thing to the other side to keep both sides equivalent!
5. _____ for the variable by combining the numbers on the other side of the equal sign.
6. _____ your solution by _____ the answer into the original problem.

Together:

① $x + 1 = 10$

② $a - 8 = 150$

Pause and Try:

① $c - 5 = 9$

② $14 + d = 21$

SOOLVE MULTIPLY/DIVIDE EQUATIONS

multiplication property of equality

division property of equality

inverse operations

Together:

$5b = 30$	$3 = \frac{y}{9}$	$\frac{y}{5} = 8$
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STEPS:

1. Draw railroad _____ to separate the two sides of the equation.
2. Circle the variable and _____ attached to it.
3. Use the _____ operation to get the _____ by itself.
4. If you do something to one side, you _____ do the **SAME** thing to the other side.
5. _____ the numbers on the other side of the equal sign to _____ for the variable.
6. _____ your solution by _____ the answer into the original problem.

Pause and Try:

① $7 = \frac{x}{6}$	② $12a = 60$	③ $56 = 7y$
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Writing Two-Variable Equations

<p>An equation in two variables:</p> <p>Represents two _____ that change in _____ to one another.</p> <p>1 week = 7 days 2 weeks = 14 days $7x = y$</p>	<p>A solution in two variables:</p> <p>An _____ that makes an equation _____.</p> <p>(x, y) $7x = y$</p> <p>If (1, 7) then $7(1) = 7$</p> <p>If (2, 14) then $7(2) = 14$</p>
<p>Independent Variable:</p> <p>input or "____" in the ordered pair the quantity that can change freely.</p> <p>(2, 14) $7x = y$</p>	<p>Dependent Variable:</p> <p>output or "____" in the ordered pair the variable that depends on the value of the independent variable. This is the answer!</p> <p>(2, 14) $7x = y$</p>

Together:

Tell whether the ordered pair is a solution of the equation.

$y = 2x$; (3, 6)

$y = 4x - 3$; (4, 12)

Step 1: Substitute

Step 2: Compare.

Pause and Try:

① $y = 4x$; (0,4)

② $y = x + 7$; (1,6)

③ $y = 2x - 3$; (4,5)