Linear Equations 1

Terms to Know

equation - a math statement with two expressions that have the same value
- the two expressions are separated by an equal sign

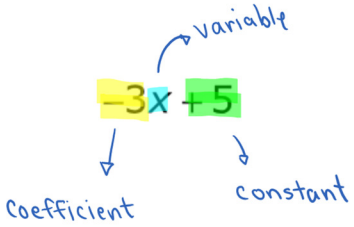
ex) $4 = x + 2$, $3x - 1 = 5$, $-6x = 24$

variable - a letter that represents an unknown number

ex) x, y, a, b etc.

constant - a number that does not change

ex) -5, 3, 2.6 etc.



coefficient - a number that multiplies the variable

ex) $2x$, $-15y^2$

linear equation - an equation whose graph is a straight line

ex) $2x = 4$, $-3y = 9$, $\frac{x}{3} = 12$, $2x + 1 = 5$, $3(x - 2) = 7$

opposite operation - math operation that undoes another operation
- aka inverse operation

addition, subtraction } opposite ("inverse") operations { multiplication, division

"undo" "undo"

distributive property - the rule that states $a(b+c) = ab + ac$

ex) $3(2 + 9)$

$3 \cdot 2 + 3 \cdot 9$

$6 + 27$

33

$ab + ac$

Example - Solving One-Step Equations

Solve each of the following:

Isolate the variable (get it by itself) by applying the opposite operation.
"undo" operation

a) $6x = 12$

$\frac{6}{6} = 1$

$\frac{6x}{6} = \frac{12}{6}$

$x = 2$

Check / Verify

$6x = 12$

$6 \cdot 2 = 12$

$12 = 12$ ✓

b) $-5b = -45$

$\frac{-5b}{-5} = \frac{-45}{-5}$

$b = 9$

c) $\frac{n}{3} = 7$

$3 \cdot \frac{n}{3} = 7 \cdot 3$

$n = 21$

Check / Verify

$\frac{n}{3} = 7$

$\frac{21}{3} = 7$

$7 = 7$ ✓

d) $\frac{w}{-2} = 9$

$-2 \cdot \frac{w}{-2} = 9 \cdot -2$

$w = -18$

" " "

a, b

c, d

Complete the following:

Practice - Linear Equations 1A (evens)
Practice - Linear Equations 1B (evens)
Check your solutions using the key provided.

Outcomes: PR2 - Model and solve problems involving linear equations