Warm Up January 24, 2019

Chromebook Login
Username
studentID#@student.cms.k12.nc.us
Ex: 12345678@student.cms.k12.nc.us

Password
YYYYMMDD (your birthday)
Ex. 19981117

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Interpreting Algebraic Expressions

Use your understanding of terms, coefficients, factors, exponents, and the order of operations to answer each of the following questions.

1. Is the expression $\frac{5+3x}{2}$ always equal to the expression $4x$? Explain your answer.

No, unlike terms were added in the numerator.

Rows 1 and 2

2. Is the expression $2(3+x)$ equal to the expression $6+3x$? Explain your answer.

No, the distributive property was misused. $\rightarrow 6+2x$

Rows 3 and 4

3. Is the expression $(5 \cdot 2)^x$ equal to the expression 10^x? Explain your answer.

Rows 5 and 6

$X=2$

$(5\cdot 2)^2 = 10^2$

$5^2 \cdot 2^2 = 100$

$25 \cdot 4 = 100$

$100 = 100$

$X=3$

$(5\cdot 2)^3 = 10^3$

$5^3 \cdot 2^3 = 1000$

$125 \cdot 8 = 1000$

$1000 = 1000$

Yes, using order of operations the expressions simplify to equal.

4. A transfer station charges $15 for a waste disposal permit and an additional $5 for each cubic yard of garbage it disposes of. This relationship can be described using the expression $15 + 5x$. What effect, if any, does changing the value of x have on the cost of the permit?

The cost of the permit is constant and changing x has not effect.

5. Absolute Cable company bills on a monthly basis. Each bill includes a $30.00 service fee plus $4.75 in taxes and $2.99 for each movie purchased. The following expression describes the cost of the cable service per month: $34.75 + 2.99m$. If Absolute Cable lowers the service fee, how will the expression change?

The value of the constant will decrease.

6. In order for a pet to lose weight in a healthy manner, a veterinarian suggested an overweight large-breed dog lose 2 pounds per week. If the expression $x - 2y$ represents this situation, what must be true about the value of y?

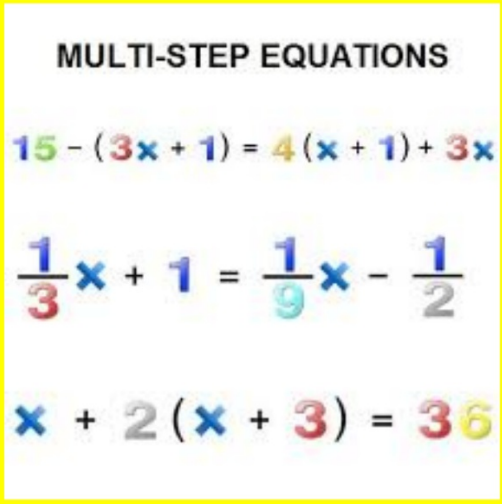
Y represents the numbe of weeks and has to be positive.

7. The product of 7, x, and y is represented by the expression $7xy$. If the value of x is negative, what can be said about the value of y in order for the product to remain positive?

Y must be negative.

8. A bank account balance for an account with an initial deposit of P dollars earns interest at an annual rate of r. The amount of money in the account after n years is described using the following expression: $P(1 + rn)$. What effect, if any, does decreasing the value of r have on the amount of money after n years?

Solving Multi-Step Equations



One Step Equations

$8 - a = 16$

$-8 \quad -8$

$-a = 8$

$\frac{-a}{-1} = \frac{8}{-1}$

$a = -8$

$8 + 8$

16

$\frac{3n}{3} = \frac{18}{3}$

$n = 6$

Two Step Equations

$7 - 3n = 28$

$-7 \quad -7$

$-3n = 21$

$\frac{-3n}{-3} = \frac{21}{-3}$

$n = -7$

$\frac{x}{3} + 4 = -12$

$-4 \quad -4$

$\frac{x}{3} = -16$

$x = -48$

Recall the steps!

Main Ideas/Questions	Notes	
What are the steps to solve a Multi-Step Equation?	1.)	Distribute, if necessary.
	2.)	Combine like terms.
	3.)	Solve the remaining two step equation.

How are these steps different than the steps to solve a one step or two step equation?

1) $9x + 1 - 7x - 5 = -20$

$2x - 4 = -20$

$+4 \quad +4$

$\frac{2x}{2} = \frac{-16}{2}$

$x = -8$

2) $-7(3a - 1) = 91$

$91 = -7(3a - 1)$

$91 = -21a + 7$

$-7 \quad -7$

$\frac{84}{-21} = \frac{-21a}{-21}$

$-4 = a$

3) $4m - 5(3m + 10) = 126$

$4m - 15m - 50 = 126$

$-11m - 50 = 126$

$+50 \quad +50$

$-11m = 176$

$\frac{-11m}{-11} = \frac{176}{-11}$

$m = -16$

4) $-3(k - 8) - (k + 5) = 23$

$-3k + 24 - k - 5 = 23$

$-4k + 19 = 23$

$-19 \quad -19$

$-4k = 4$

$\frac{-4k}{-4} = \frac{4}{-4}$

$k = -1$