(46)

01/23/17

Solving equations

eq & why do we use equations to solve real world problems?

what are the parts to solving an equation?

can you solve this?

How many variables are on the left side?

ex &

$17x + 5y - 3z + 4 = 10$

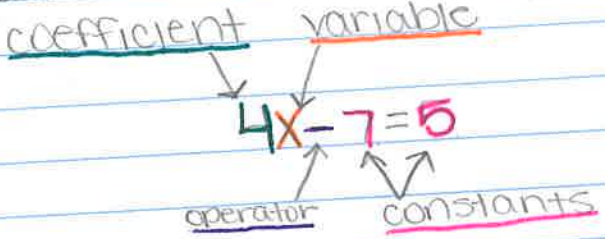
no, you cannot solve this because there's more then 1 variable.

3 variables (x, y, z)

coefficients = 17, 5, 3 } variables = x, y, z

operators = +, −, ·

constants = 4, 10



coefficient → always a # infront of a variable

variable (just the # not the variable)

operator → + add, − subtract, x multiply, ÷ division

constant → real #s (dont change)

Combining like Terms

$a + a + a = 3a$

$2 + 2 = 4$

$2 + a + a = 2 + 2a$

$2a + 2a = 4a$

$a + b = ab$

Multi-step math problems involving variables by writing and solving equations to represent problems involving simple interest.

Simplifying expressions w/Products + Exponent

Practice Side

Are these the same?
$a+a=a\cdot a$
$2a \neq a^2$

$2\cdot 4=8$

$a\cdot a=a^2$

$a\cdot a\cdot b=a^2b$ or $a^2\cdot b$ or a^2b

$c\cdot c\cdot c\cdot c=c^4$

$a^2\cdot a^2=a^4$

$4b-2b=b^2$ No
$2b\neq b^2$

$x+x+x\cdot x=x\cdot x+x+x$
$x+x+x^2=x^2+x+x$
$2x+x^2=x^2+2x$

$p\cdot 3\cdot r\cdot 2=(p+p)\cdot(r+r+r)$
$6pr=2p\cdot 3r$
$6pr=6pr$

$a+a=a^2$ wrong / $2a$ = right
say apple + apple = 2 apples

$4b-2b=b^2$ No
$2b\neq b^2$

$4x+5=12$
$-5 \quad -5$
$\frac{4(x)}{4}=\frac{7}{4}$
$x=7/4\approx 1.75$

$9x+2$
$9(1.75)+2$
$15.75+2=17.75$

$5x+10=70$
$-10 \quad -10$
$\frac{5x}{5}=\frac{60}{5}$
$x=12$

$2x+3$
$2(12)+3$
$24+3$
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One step equations / Two step equations

What is the difference between a 1+2 step equation?

$5x = 10$ (2) = answer

opposite of multiplying

$y - 7 = 23$ opposite of subtraction

$+7 \quad +7$

$y = 30$

$\frac{x}{4} = 25$ opposite of division

$x = 100$

$100 + c = 200$ opposite of addition

$c = 100$

$5x + 20 = 100$

$5(16) + 20 = 100$

$-20 \quad -20$

$5(16) = 80$

$4x - 10 = 80$

$+10 \quad +10$

$4x = 90$

$x = 22.5$

$6(4x) = 360$

$6(4 \cdot 15)$

$6(60) = 360$

or

$6 \cdot (4x) = 360$

$\frac{24x}{24} = \frac{360}{24} = 15$

$\frac{25 - x}{4} = 5$

$x = 5$

$25 - 5 = \frac{20}{4} = 5$

1 $5(x+4)$

$5x+20$

2 $2(2bc+c)$

$2b+c$ because no like items

$3(x+5)-2(x+1)$

$3x+15-2x-2$

$1x+13$

$2(x+3)-3(2+4)+5(x+5)$

$2x+6-3z-12+5x+25$

$7x+31-3z-12$

$7x+19-3z$

$6(y-6) = \boxed{6y-36}$

$7(5+x-6)$ $35 + 7x - 42$

$+42$

$\boxed{7x-7}$

$a(a+b) = \boxed{a^2+ab}$

$ab(a+b) = \boxed{a^2b+ab^2}$

1. $2x - 2x = 0$

$0 = 0$

infinite solutions

2 $x^2 = 25$

$x = 5^2$

$+5$ or -5

3 $x - x = 5$

$1 - 1$

$0 = 5$

no solution

1 way

$\frac{4}{10}(x+7) = \frac{2}{10}(x+15)$

$\frac{2}{5}(x+7) = \frac{1}{5}(x+15)$

$\frac{2}{5}x + \frac{14}{5} = \frac{1}{5}x + 3$

$2x + 14 = x + 15$

$-x \quad -14 \quad -x \quad -14$

$x = 1$

2 way

$\frac{4}{10}(x+7) = \frac{2}{10}(x+15)$

$4(x+7) = 2(x+15)$

$4x + 28 = 2x + 30$

$-2x - 28 \quad -2x - 28$

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

$x = 1$