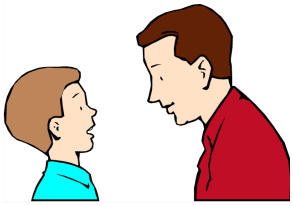
Warm Up Grade 8

April 21, 2017



1) Stan ate 21 skittles. His dad says that he ate one-third of the bag. How many skittles were in the bag to start with?

a) Write an equation to represent this problem. Solve the equation. SAMDEB

b) Verify the solution. BEDMAS

let x represent how many skittles were in the bag

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

$\cancel{3 \times \frac{x}{3}} = 21 \times 3$

$x = 63$

There was 63 skittles in the bag.

b) $x = 63$

LHS $\frac{x}{3}$

$\frac{63}{3}$

21

RHS 21

same

solve using algebra (SAMDEB)

2) $\frac{c}{2} - 7 = 5$

$\frac{c}{2} \cancel{-7}^{+7} = 5 + 7$

$\frac{c}{2} = 12$

$\cancel{2 \times \frac{c}{2}} = 12 \times 2$

$\boxed{c = 24}$

b) $3x + 1.54 = 51.25$

$3x \cancel{+1.54} \cancel{-1.54} = 51.25 - 1.54$

$3x = 49.71$

$\frac{\cancel{3}x}{\cancel{3}} = \frac{49.71}{3}$

$\boxed{x = 16.57}$

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8 a) $\frac{p}{-3} + 9 = 3$

$\frac{p}{-3} + 9 - 9 = 3 - 9$

$\frac{p}{-3} = -6$

$\frac{p}{-3} \times -3 = -6 \times -3$

$p = +18$

LS

$\frac{p}{-3} + 9$

$\frac{18}{-3} + 9$

$-6 + 9$

$+3$

RS

3

b) $\frac{t}{-6} + 12 = 18$

$\frac{t}{-6} + 12 - 12 = 18 - 12$

$\frac{t}{-6} = 6$

$\frac{t}{-6} \times -6 = 6 \times -6$

$t = -36$

LS

$\frac{t}{-6} + 12$

$\frac{-36}{-6} + 12$

$6 + 12$

18

RS

18

c) $-24 + \frac{w}{5} = -29$

$-24 + \frac{w}{5} + 24 = -29 + 24$

$\frac{w}{5} = -5$

$\frac{w}{5} \times 5 = -5 \times 5$

$w = -25$

LS

$-24 + \frac{w}{5}$

$-24 + \frac{-25}{5}$

$-24 + -5$

-29

RS

-29

d) $-17 + \frac{e}{-7} = -8$

$-17 + \frac{e}{-7} + 17 = -8 + 17$

$\frac{e}{-7} = 9$

$\frac{e}{-7} \times -7 = 9 \times -7$

$e = -63$

LS

$-17 + \frac{e}{-7}$

$-17 + \frac{-63}{-7}$

$-17 + 9$

-8

RS

-8

9. n = the number

a) $\frac{n}{-3} + 1 = 6$

$\frac{n}{-3} + 1 - 1 = 6 - 1$

$\frac{n}{-3} = 5$

$\frac{n}{-3} \times -3 = 5 \times -3$

$n = -15$

b) $3 - \frac{n}{9} = 0$

$3 - \frac{n}{9} - 3 = 0 - 3$

$-\frac{n}{9} = -3$

$-\frac{n}{9} \times 9 = -3 \times 9$

$-n = -27$

$n = 27$

c) $4 + \frac{n}{-2} = -3$

$4 + \frac{n}{-2} - 4 = -3 - 4$

$\frac{n}{-2} = -7$

$\frac{n}{-2} \times -2 = -7 \times -2$

$n = +14$

10.

$$\frac{x}{2} - 11 = 12$$

$$\frac{x}{2} - 11 + 11 = 12 + 11$$

$$\frac{x}{2} = 23$$

$$\frac{x}{2} \times 2 = 23 \times 2$$

$$x = 46$$

11. a) Yes, correct

n is the number of candy in the bag, dividing by 5 represents the 5 students, subtract 1 is the candy given to the teacher and 9 is how many candy each student had.

$$\frac{n}{5} - 1 = 9$$

$$\frac{n}{5} - 1 + 1 = 9 + 1$$

$$\frac{n}{5} = 10$$

$$\frac{n}{5} \times 5 = 10 \times 5$$

$$n = 50$$

LS

$$\frac{n}{5} - 1$$

$$\frac{50}{5} - 1$$

$$10 - 1$$

$$9$$

RS

9.

12 n = grade 8 students

$$\frac{n}{3} + 5 = 41$$

$$\frac{n}{3} + 5 - 5 = 41 - 5$$

$$\frac{n}{3} = 36$$

$$\frac{n}{3} \times 3 = 36 \times 3$$

$$n = 108$$

13a) Correct

b) Didn't isolate the variable first

c) Should have multiplied by -4.

Extra Practice 3

checks

2a) $\frac{d}{5} = -8$

$\frac{d}{5} \times 5 = -8 \times 5$

$d = -40$

b) $\frac{f}{-6} = 10$

$\frac{f}{-6} \times -6 = 10 \times -6$

$f = -60$

c) $\frac{k}{-2} = -11$

$\frac{k}{-2} \times -2 = -11 \times -2$

$k = 22$

d) $\frac{q}{3} = -12$

$\frac{q}{3} \times 3 = -12 \times 3$

$q = -36$

3 a) $x \equiv$ chicken Pieces

$\frac{x}{4} = 7$

There was a total of 28 pieces

$4 \times \frac{x}{4} = 7 \times 4$

$x = 28$

4 a) $\frac{n}{3} - 2 = 10$

$\frac{n}{3} - 2 + 2 = 10 + 2$

$\frac{n}{3} = 12$

$3 \times \frac{n}{3} = 12 \times 3$

$n = 36$

b) $4 - \frac{p}{5} = 13$

$4^{-4} - \frac{p}{5} = 13^{-4}$

$5 \times \frac{-p}{5} = 9 \times 5$

$-p = 45$

$p = -45$

d) $\frac{t}{-9} + 8^{-8} = -5^{-8}$

$\frac{t}{-9} = -13$

$(-9)\frac{t}{-9} = -13 \times -9$

$t = 117$

d) $-17^{+17} + \frac{n}{-3} = 9^{+17}$

$\frac{n}{-3} = 26$

$-3 \times \frac{n}{-3} = 26 \times -3$

$n = -78$

5 a) $\frac{n}{-4} = 7$

$n = -28$

b) $4^{-4} + \frac{n}{-3} = -2^{-4}$

$\frac{n}{-3} = -6$

$-3 \times \frac{n}{-3} = -6 \times -3$

$n = +18$

c) $1^{-1} - \frac{n}{6} = 5^{-1}$

$\frac{-n}{6} = 4$

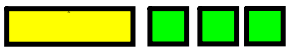
$\times 6 \; -\frac{n}{6} = 4 \times 6$

$-n = 24$

$n = -24$

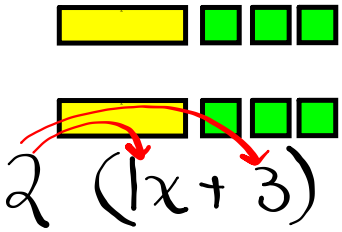
$-\frac{n}{6} + 1 = 5$

What is the algebraic expression?



$x + 3$

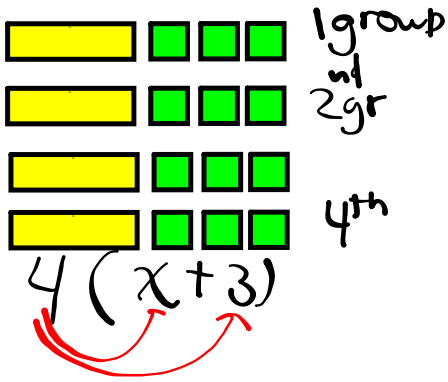
How could you describe the expression below?



$2x + 6$

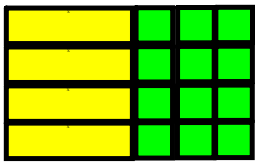
2 groups of $x+3$
or
$2x+6$

What about this expression?



4 groups of $x+3$
OR
$4x + 12$

How is this related to the diagram above?



$4(x+3)$

times

times

$4x + 12$

What we just showed is the Distributive Property in math.

4 (x+ 3) means the 4 is distributed to the x and to the 3, so we get

$4 \cdot x + 4 \cdot 3$

$4x + 12$

multiply

multiply

$3(2x+1)$

$6x + 3$

Examples: Model and give the answer for the following:

(a) 3(2x + 1)

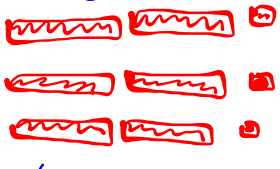
model

Model 3 groups of $2x+1$

1st group

2nd group

3rd group



$6x + 3$

Without modelling:

$3(2x+1)$

b) $2(3x+2)$

Ex1)

$2(3x+7)$ is this the same as $21x+10$

$6x + 14$

Not same

$21x + 10$

Ex2)

$5(x+4)$ is it the same as $5x+20$

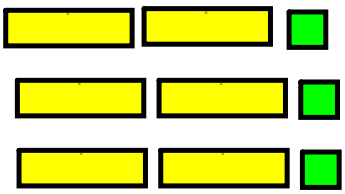
$5x+20$

Same ✓

What we just showed is the Distributive Property in math.
4 (x+ 3) means the 4 is distributed to the x and to the 3,
so we get 4 x x + 4 x 3
$4x + 12$

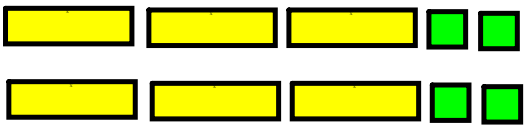
Examples: Model and give the answer for the following:

(a) 3(2x + 1)



6x +3

(b) 2(3x + 2)



6x + 4

Without modelling:

$3(2x+1)$
$6x + 3$

$2(3x+2)$
$6x+4$

The Distributive Property

The property stating that a product can be written as a sum or difference of two products.

multiplied

For example: a(b + c) = ab + ac

a(b - c) = ab - ac

Box method

Multiply: 3(x + 4)

	x	$+4$
3	$3(x)$ $= 3x$	$3(+4)$ $= (+12)$

Ans = $3x + 12$

Multiply: 7(c + 2)

You try

$2(x + 4)$

$3(x - 2)$

Expand:

a) -5(x +7)

$-5x - 35$

OR

$-5(x+7)$

Box Method

	x	$+7$
-5	$-5(x)$ $= -5x$	$-5(+7)$ -35

Answer

$-5x - 35$

-5 groups of $(x+7)$

b) 4(2 - c)

$8 - 4c$

	2	$-c$
4	$4(2)$ $= 8$	$4(-c)$ $-4c$

$8 - 4c$

Class/Homework

Bedmas
ab

algebra
tiles
Box Math
Algebar

pg. 342 # ~~1,2~~,4,5,6,7 (a, c, e, g, i)

similar to tcs