



Warm Up Grade 8

Test April 24

April 19, 2018



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.
b) Verify the solution.

let b represent how many skittles were in the bag

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

$$3 \times \frac{b}{3} = 21 \times 3$$

$$b = 63$$

There was
63 Skittles
in the bag.

solve using algebra

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

2

SAMP ~~B~~

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

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

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

$$c = 24$$

Pg 33b

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

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

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

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

$$p = +18$$

LS	RS
$\frac{p}{-3} + 9$	3
$\frac{18}{-3} + 9$	
$-6 + 9$	
+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	RS
$\frac{t}{-6} + 12$	18
$\frac{-36}{-6} + 12$	
6 + 12	
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	RS
$-24 + \frac{w}{5}$	-29
$-24 + \frac{-25}{5}$	
$-24 + -5$	
-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	RS
$-17 + \frac{e}{-7}$	-8
$-17 + \frac{-63}{-7}$	
$-17 + 9$	
-8	

9. $n =$ the number

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

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

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

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

$$n = -15$$

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

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

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

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

$$-n = -27$$

$$n = 27$$

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

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

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

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

$$n = +14$$

$$\begin{aligned}
 10. \quad \frac{x}{2} - 11 &= 12 \\
 \frac{x}{2} - 11 + 11 &= 12 + 11 \\
 \frac{x}{2} &= 23 \\
 \frac{x}{2} \times 2 &= 23 \times 2 \\
 x &= 46
 \end{aligned}$$

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.

$$\begin{aligned}
 \frac{n}{5} - 1 &= 9 \\
 \frac{n}{5} - 1 + 1 &= 9 + 1 \\
 \frac{n}{5} &= 10 \\
 \frac{n}{5} \times 5 &= 10 \times 5 \\
 n &= 50
 \end{aligned}$$

$$\begin{array}{r}
 \text{LS} \\
 \begin{array}{r}
 50 \\
 - 1 \\
 \hline
 50 \\
 - 1 \\
 \hline
 50 \\
 - 1 \\
 \hline
 50 \\
 - 1 \\
 \hline
 49
 \end{array}
 \end{array}$$

RJ
9.

12 $n = \text{grade 8 students}$

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

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

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

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

$$n = 108$$

13a) Correct

b) Didn't isolate the variable first

c) Should have multiplied by -4 .

Extra Practice 3

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

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

$$d = -40$$

checks

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) $\frac{g}{3} = -12$

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

$$g = -36$$

3 a) $x \equiv$ chicken pieces

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

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

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

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

$$-p = 45$$

$$p = -45$$

d) $\frac{t}{4} + 8 = -5 - 8$

$$\frac{t}{4} = -13$$

$$(-) \frac{t}{4} = -13 \times -4$$

$$t = 117$$

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

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

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

$$n = -78$$

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

$$n = 28$$

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

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

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

$$n = -18$$

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

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

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

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

$$-n = 24$$

$$n = -24$$

What is the algebraic expression?



$x + 3$

color = +
uncolor = -



How could you describe the expression below?



$x + 3$



$x + 3$

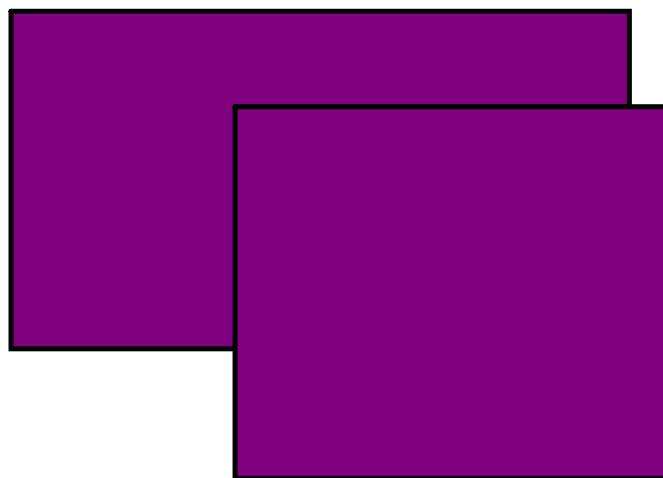
$= 2x + 6$



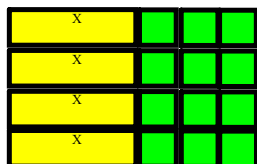
What about this expression?



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



How is this related to the diagram above?



$4x + 12$
They are the same
but in this one the
tiles are touching.
Still mean $4x(x+3)$

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
 $4 \times x + 4 \times 3$
 $4x + 12$

Examples: Model and give the answer for the following:

(a) $3(2x+1)$
 3 groups of $(2x+1)$



← 1 group
 ← 2nd group
 ← 3rd group

$= 6x + 3$

Without modelling:

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

(b) $2(3x+2)$
 2 groups of $3x+2$



$6x + 4$

b)

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

What we just showed is the Distributive Property in math.

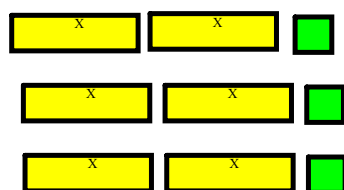
$4(x + 3)$ means the 4 is distributed to the x and to the 3,

so we get $4 \times x + 4 \times 3$

$$4x + 12$$

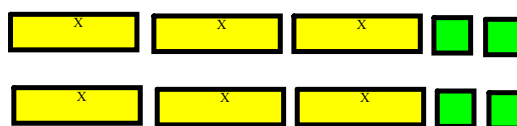
Examples: Model and give the answer for the following:

(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.

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



$$a(b - c) = ab - ac$$

$$(7)(3) = 21$$


Box methodMultiply: $3(x + 4)$

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

$= 3x + 12$

$$21 \times 62$$

	60	2
20		
1		


Multiply: $7(c + 2)$

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$2(x + 4)$

$3(x - 2)$

Expand: (multiply)

$$\text{a) } -5(x + 7)$$


$$-5x - 35$$

$$\text{b) } 4(2 - c)$$


$$8 - 4c$$

Class/Homework

Test April 24

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