



Warm Up Grade 8

April 25, 2017



1) Solve a)  $3x - 11 = 52$

$$3x - 11 = 52 + 11$$

$$\frac{3x}{3} = \frac{63}{3}$$

$$x = 21$$

b)  $\frac{n}{-4} + 5 = -8$

$$\frac{n}{-4} + 5 = -8 - 5$$

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

$$n = + 52$$

Expand

2) a)  $10(9x - 8)$

$$10(9x) + 10(-8)$$

$$90x - 80$$

b)  $3(-2g + 7)$

$$-6g + 21$$

pg. 342 # 7-16, 18,19 Reflect

$$\begin{array}{l} 7a) 2(x+10) \\ 2x+20 \end{array}$$

$$\begin{array}{l} b) 5(a+1) \\ 5a+5 \end{array}$$

$$\begin{array}{l} c) 10(f+2) \\ 10f+20 \end{array}$$

$$\begin{array}{l} d) 6(12+g) \\ 72+7g \end{array}$$

$$\begin{array}{l} e) 8(8+y) \\ 64+8y \end{array}$$

$$\begin{array}{l} f) 5(s+6) \\ 5s+30 \end{array}$$

$$\begin{array}{l} g) 3(9+p) \\ 27+3p \end{array}$$

$$\begin{array}{l} h) 4(11+r) \\ 44+4r \end{array}$$

$$\begin{array}{l} i) 7(g+15) \\ 7g+105 \end{array}$$

$$\begin{array}{l} j) 9(7h) \\ 63+9h \end{array}$$

$$8a) 3(x-7)$$

$$3x-21$$

$$b) 4(a-3)$$

$$4a-12$$

$$c) 9(h-5)$$

$$9h-45$$

$$d) 7(g-f)$$

$$56-7f$$

$$e) 5(l-s)$$

$$5-5s$$

$$f) 6(p-2)$$

$$6p-12$$

$$g) 8(11-t)$$

$$88-8t$$

$$h) 2(15-v)$$

$$30-2v$$

$$i) 10(b-8)$$

$$10b-80$$

$$j) 11(c-4)$$

$$11c-44$$

$$9. \text{Per} = s + t + s + t + s$$

$$= b + h + b + h$$

$$\text{or } 2b + 2h$$

$$\text{or}$$

$$\text{Per} = 2(b+h)$$

$$= 2b + 2h$$

(Discuss)

$$10. \quad hb = bh$$

When you multiply order does not matter

$$2 \times 3 = 3 \times 2$$

therefore


$$h \times b = b \times h$$

$$11. \quad 9(6-t)$$


$$= 54 - 9t$$

which is (a)


$$12. \quad a) \quad -6(c+4) \\ -6c - 24$$

$$b) \quad -8(a-5) \quad (-8)(-5)$$



$$c) \quad 10(f-7) \\ 10f - 70$$

$$d) \quad 3(-8-g)$$


$$e) \quad -8(8-y) \quad -64 - (-8y) \\ -64 + 8y \quad -64 + 8y$$

$$f) \quad -2(-st+5)$$


$$g) \quad -5(-t-8) \quad st - (-40) \\ 5t + 40$$

$$h) \quad -9(9-w) \quad -81 - (-9w)$$


13. a)  $2x+20$  and  $2(x+20)$

not equivalent

$$2(x+20)$$

$$= 2x+40$$

They didn't multiply the 20 by 2.

b)  $3x+7$  and  $10x$

not equivalent

could model  
to show

$3x+7x$  equals  $10x$ , but you don't add the 3 and the 7 in  $3x+7$  because they are unlike terms.

c)  $6+2t$  and  $2(t+3)$

equivalent

$$2(t+3)$$

$2t+6$  which is the same as  $6+2t$   
(add in any order).

d)  $9+x$  and  $x+9$

equivalent

you can add in any order.

$$14. \quad 15 \times 25 + 15 \times 14 \quad \text{OR} \quad 15(25+14)$$

Jersey  
for each
Hat for  
each
(Jersey and  
hat Together)

$$b) \quad 375 + 210$$

$$585$$

$$15(39)$$

$$585$$

$$15k(b)$$

$$5 \times 9 + 5 \times 8$$

$$45 + 40$$

$$85$$

$$\text{OR} \quad 5(9+8)$$

$$5(17)$$

$$85$$

$$16. \quad \text{Column 1}$$

$$\text{Column 2}$$

$$a) \quad 6(t-6)$$

$$6t-36$$

$$(iv)$$

$$b) \quad -6(t-6)$$

$$-6t+36$$

$$(ii)$$

$$c) \quad -6(t+6)$$

$$-6t-36$$

$$(iii)$$

$$d) \quad 6(6+t)$$

$$36+6t$$

$$(i)$$

$$\begin{aligned} & 14) \quad 15(j + c) \\ & \Rightarrow 15(25 + 14) \\ & b) \quad 15(39) \\ & \quad 585 \end{aligned}$$

$$\begin{aligned} & 15j + 15c \\ & 15(25) + 15(14) \\ & \underbrace{\quad} \quad 210 + 375 \\ & \quad 585 \end{aligned}$$

$$\begin{array}{l}
 18. \quad 7(\underline{5+y-2}) \\
 \text{a)} \quad 7(3+y) \\
 \quad \quad 21+7y
 \end{array}$$

$$\begin{array}{l}
 \text{or } 7(5+y-2) \\
 \quad 35+7y-14 \\
 \quad \quad 21+7y
 \end{array}$$

$$\begin{array}{l}
 \text{b)} \quad -3(-t+8-3) \\
 \quad \quad -3(-t+5) \\
 \quad \quad 3t-15
 \end{array}$$

$$\begin{array}{l}
 \text{c)} \quad -8(\underline{-9+s+5}) \\
 \quad \quad -8(-4+s) \\
 \quad \quad 32+(-8s) \\
 \quad \quad 32-8s
 \end{array}$$

$$\begin{array}{l}
 \text{d)} \quad 12(\underline{-10-p+7}) \\
 \quad \quad 12(-3-p) \\
 \quad \quad -36-12p
 \end{array}$$



$$19 \text{ a) } 2(7+b+c) \\ 14 + 2b + 2c$$

$$\text{b) } 11(-6+e-f) \\ -66 + 11e - 11f$$

$$\text{c) } -1(-r+s-8) \\ r - s + 8$$

$$\text{d) } -10(-6-v+w) \\ 60 + 10v + 10w$$

$$\text{e) } 5(j-1s-k) \\ 5j - 5s - 5k$$

$$\text{f) } -4(-g+12-h) \\ 4g - 48 + 4h$$

### Solving Equations that Involve the Distributive Property

The Distributive property may also appear in solving equations.

When it does, **first you have to apply the distributive property, then solve as you normally would.**

Solve the following:

$$(a) \quad 2(x + 4) = 18$$

$$2x + 8 = 18$$

$$2x + \cancel{8-8} = 18 - 8$$

$$\frac{2x}{2} = \frac{10}{2}$$

$$\boxed{x = 5}$$

$$(b) \quad 3(x - 5) = 9$$

$$3x - 15 = 9$$

$$3x - \cancel{15+15} = 9 + 15$$

$$\frac{3x}{3} = \frac{24}{3}$$

$$\boxed{x = 8}$$

Solving Equations that  
Involve the Distributive Property

The Distributive property may also appear in solving equations.

When it does, **first you have to apply the distributive property, then solve as you normally would.**

Solve the following:

(a)  $2(x + 4) = 18$

(b)  $3(x - 5) = 9$

$$\begin{aligned} \text{a) } 2(x+4) &= 18 \\ 2x+8 &= 18 \\ 2x+8-8 &= 18-8 \\ 2x &= 10 \\ \frac{2x}{2} &= \frac{10}{2} \\ x &= 5 \end{aligned}$$

LS	RS
$2(x+4)$	18
$2(6+4)$	
$2 \times 9$	
18	

$$\begin{aligned} \text{b) } 3(x-5) - 9 &= 9 \\ 3x - 15 - 9 &= 9 \\ 3x - 24 &= 9 \\ 3x - 24 + 24 &= 9 + 24 \\ 3x &= 33 \\ \frac{3x}{3} &= \frac{33}{3} \\ x &= 11 \end{aligned}$$

$$\begin{aligned} 3x + (-15) + (-9) \\ \text{or } 3x + (-24) \end{aligned}$$

LS	RS
$3(x-5) - 9$	9
$3(11-5) - 9$	
$3 \times 6 - 9$	
$18 - 9$	
9	



### Word Problem

Ex)

I have 4 friends. We each have a package of cookies and we each have 2 cookies that are not in the package. If we have 50 cookies in total, how many cookies are in each package?

i) let  $x$  represent the # of cookies in the package

hint : How many people?

5 people

$$\text{ii) } 5(x + 2) = 50$$

$$5x + 10 = 50$$

$$5x + \cancel{10}^{-10} = \cancel{50}^{-10}$$

$$\frac{5x}{5} = \frac{40}{5}$$

$$\boxed{x = 8}$$

iii) There is 8 cookies in a pack



### Word Problem

Ex)

I have 4 friends. We each have a package of cookies and we each have 2 cookies that are not in the package. If we have 50 cookies in total, how many cookies are in each package?

$b$  = the number of cookies in one package

$b + 2$  = the number of cookies each person has

$$5(b + 2) = 50$$

$$5b + 10 = 50$$

$$5b + 10 - 10 = 50 - 10$$

$$5b = 40$$

$$\frac{5b}{5} = \frac{40}{5}$$

$$b = 8$$

Each package has 8 cookies.

$$\begin{array}{l} \text{LS} \\ 5(b+2) \\ 5(8+2) \\ 5 \times 10 \\ 50 \end{array}$$

$$\begin{array}{l} \text{RS} \\ 50 \end{array}$$

# Class/Homework

Homework pg. 347 # 4-9

4 ab  
5 ab  
6 ab  
8 ab  
9 ab

Per =  $2l + 2w$   
or  
 $2(l+w)$

Quiz Or Test?

Test PART 1 outline

5 MC

$$a) 2x - 3 = 7$$

5 Short Response

#1 Draw tiles and solve an equation

#2 Use Algebra tiles or box method to prove distributive property  
Prove  $2(x-3)$  same as  $2x-6$

#3 For each problem, state the variable, write and solve the equation, verify and give a statement. (Like warm up on Friday)

#4 Solve Ex)  $2(x-3) = 16$

#5 For each of the following tell whether the pair of expressions is equivalent or not.

#6 (Is it correct if yes then verify if no then redo)