Section 1.B.3

Name Teacher Pd____ Date____ **Section 1.10**

Number Talk

12 · 15

15

4	60
4	60
4	60

60+60+60
60 · 3 = 180

chunking method

15(4+4+4)
60+60+60
60·3
180

	12
5	60
5	60
5	60

12(5+5+5)
60+60+60
180

	12
10	120
5	60

120+60=180
12(10+5)
120+60=180

Distributive Property

Karla has 4 fewer dresses than her sister Kayla has. Their cousin Kimmy has three times as many dresses as Karla has. Write an algebraic expression for the number of dresses Kimmy has. Define your variable.

d: Kayla's dresses

3(d-4)

Karla's dresses

	d-4
3	

	d+(-4)
3	

	d	-4
3	3d	-12

3d + (-12)
3d - 12

Recall that multiplication is repeated addition. Rewrite your algebraic expression. Combine like terms.

3(d-4) = (d-4) + (d-4) + (d-4)

d + (-4) + d + (-4) + d + (-4) associative property

d + d + d + (-4) + (-4) + (-4) commutative property

3d + (-12) = 3d - 12

Compare your algebraic expressions.

3(d-4) = 3d + (-12) distributive property

3(d) + 3(-4) = 3d + (-12)

3d - 12 = 3d - 12

Key Idea:

The distributive property allows you to simplify the product of a number and a sum or a difference.

You must multiply the factor on the outside by every term on the inside.

Example	Useful Property/Rule	You Try
1) $(5b-4)(-7)$ $5b(-7)+(-4)(-7)$ $-35b+28$	commutative property $a \cdot b = b \cdot a$	2) $(-9n+4)(-6)$ $-9n(-6)+4(-6)$ $54n-24$
3) $-(2y-3x)$ $-1(2y-3x)$ $-1(2y)+(-1)(-3x)$ $-2y+3x$	multiplication property of -1 $+ \rightarrow -$ $- \rightarrow +$	4) $-(6h-7h^2)$ $-1(6h-7h^2)$ $-6h+7h^2$
5) $\frac{4x-6}{2}$ $\frac{1}{2}(4x-6)$ $\frac{1}{2}(4x)+\frac{1}{2}(-6)$ $2x-3$	Dividing is the same as multiplying by the reciprocal $a \div 2 = a \cdot \frac{1}{2}$	6) $\frac{9x-15}{3} = \frac{1}{3}(9x-15)$ $\frac{1}{3}(9x)+\frac{1}{3}(-15)$ $3x-5$

Simplify Expressions - Distributive Property AND Combine Like Terms

7) $10-(6a-4b+2c)+7b-a$ $10-6a+4b-2c+7b-a$ $-6a+(-a)+4b+7b+10-2c$ $-7a+11b+10-2c$	8) $\frac{8x+6}{3}+\frac{1}{3}x-1$ $\frac{8x}{3}+\frac{6}{3}+\frac{1}{3}x-1$ $3x+2-1$ $3x+1$ $\frac{8x}{3}+\frac{1}{3}x+\frac{6}{3}-1=\frac{9}{3}x+2-1$
9) $\frac{3}{2}\left(\frac{1}{9}x+\frac{4}{5}\right)+\frac{3}{5}$ $\frac{3}{2}\cdot\frac{1}{9}x+\frac{3}{2}\cdot\frac{4}{5}+\frac{3}{5}$ $\frac{1}{18}x+\frac{6}{5}+\frac{3}{5}=\frac{1}{18}x+\frac{9}{5}$	10) $4(x^2y+xy^2)-2x^2y$ $4x^2y+4xy^2-2x^2y$ $2x^2y+4xy^2$
11) $-(4y-10)+\frac{8y-12}{4}$ $-4y+10+2y-3$ $-2y+7$	12) $3(2xy+3x-5y)+2xy-3x-4y$ $6xy+9x-15y+2xy-3x-4y$ $6xy+2xy+(-15y)+(-4y)+9x+(-3x)$ $8xy-19y+6x$