7.3.3 How can I talk about it?

Distributive Property and Expressions Vocabulary

You have been writing expressions in different ways to mean the same thing. The way you write an expression depends on whether you see tiles grouped by rows (like four sets of x + 3) or whether you see separate groups (like 4x and 12). The **Distributive Property** is the formal name for linking these two equivalent expressions.

7-102. Recall that parentheses allow us to consider the number of groups of tiles.

a) Below are four steps of a math magic trick. Write the result of the steps in two different ways. Build it with tiles if it helps you.

1. Pick a number (x)
2. Triple it.
3. Add 1.
4. Multiply by 2.

b) Write $4(2x + 3)$ in another way.

c) Build $9x + 3$ with algebra tiles. How many groups can you divide the tiles into evenly? Write the expression two ways, one with parentheses and one without.

d) Build $15x + 10$ with tiles and write the expression another way.

7-103. Write the following descriptions in another way. For example, 4(x + 3) can also be written 4x + 12.

a) 6(8 + x) b) 12x + 4 c) 21x + 14 d) 18 + 12x

7-104. Write the following number trick as two different expressions (with and without parentheses). Draw a diagram to help to explain your thinking.

1) Pick a number. 2) Multiply by 4. 3) Add 7. 4) Multiply by 3.

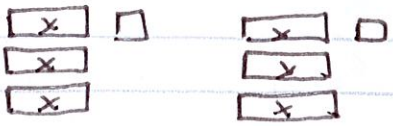
x 4x 4x+7 3(4x+7)

7-105. Give an example for each vocabulary word listed in the math notes below.

METHODS AND MEANINGS
MATH NOTES

Algebra Vocabulary

a) Variable: A letter or symbol that represents one or more numbers.
b) Expression: A combination of numbers, variables, and operation symbols.
c) Term: Parts of the expression separated by addition and subtraction.
d) Coefficient: The numerical part of a term.
e) Constant: A number that is not multiplied by a variable.
f) Factor: Part of a multiplication expression.

7-102 a) $2(3x+1)$ or $6x+2$ 

b) $4(2x+3)$ = "Four Groups of $2x+3$"

$8x+12$

c) $9x+3 = \boxed{3(3x+1)}$ You can divide it evenly into 3 groups.

d) $\boxed{5(3x+2)}$

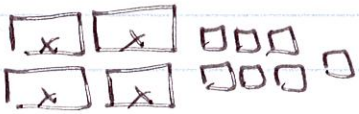
7-103 a) $6(8+x) = 8+x \; 8+x \; 8+x \; 8+x \; 8+x \; 8+x = \boxed{48+6x}$

b) $12x+4 = \boxed{4(3x+1)}$

c) $21x+14 = \boxed{7(3x+2)}$

d) $18+12x = \boxed{2(9+6x) = 6(3+2x)}$

7-104 



$\boxed{\begin{array}{l} 3(4x+7) \\ 12x+21 \end{array}}$

7-105 a) Variable = x

b) Expression = $\underbrace{3x}_{\text{Term 1}} + \underbrace{2}_{\text{Term 2}}$

c) Term = circled Above

d) Coefficient = $\underline{4}x$

e) Constant = $4x+\underline{3}$

f) Factor = $2(4x+3)$ or $\underline{5} \cdot \underline{7}$