7.3.2 How can I write it?

Distributive Property

Today you will be using **algebra tiles** and the **distributive property** to help you visually determine if two expressions are equivalent.

7-92. Consider the expression 2(x + 4). Work with your teacher to "combine like terms" re-write an equivalent expression without parentheses. Include a diagram of your algebra tiles.

7-93. How else can 3(x + 5) be rewritten? Use what you learned in problem 7-92 to help you write an equivalent expression without parentheses. Include a diagram with your answer.

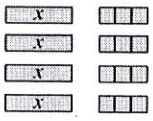
7-94. Diana wrote the expression 2x + 6, Sam had written 2(x + 3), and Elliot had written 2x + 3. Which expression(s) are equivalent? How do you know? Use tiles, sketches, numbers, and reasons to explain your thinking.

7-95. How can 4(x + 2) be written so that there are no parentheses? Include a diagram with your solution.

7-96. Translate each of these situations into an expression with a variable.

a) Pick a number and multiply it by 7.
b) Pick a number and reduce it by 10.
c) Pick a number, add 2, then multiply by 5. Can you write this 2 ways?

7-97 Use the diagram at right to write an expression, then re-write it using parentheses (like the examples above).



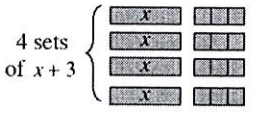
METHODS AND MEANINGS
MATH NOTES

Distributive Property with Variables

Remember that the **Distributive Property** states that multiplication can be "distributed" as a multiplier of each term in a sum or difference. Symbolically, this can be written as:

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

For example, the collection of tiles at right can be represented as 4 sets of x + 3, written as 4(x + 3). It can also be represented by 4 x-tiles and 12 unit tiles, written as 4x + 12.



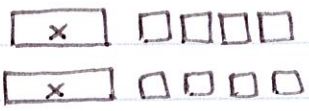
$4(x + 3) = 4x + 12$

b) $x - 10$

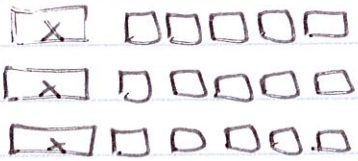
c) $(x + 2) \times 5$ or $5(x + 2) = 5x + 10$

7-97 $4x + 12 = 4(x + 3)$

7-92 $2(x+4)$ = "two sets of" $(x+4)$ = $\boxed{2x+8}$

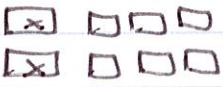


7-93 $3(x+5)$ = "three sets of" $(x+5)$ = $\boxed{3x+15}$



7-94

Diana: $2x+6$

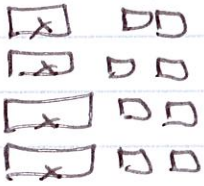


Sam: $2(x+3)$

Elliot: $2x+3$

Diana and Sam have equivalent expressions.

7-95 $4(x+2)$ = "four sets of" $(x+2)$ = $\boxed{4x+8}$



7-96 "Pick a Number" = Variable (unknown) = x

a) $x \cdot 7$ or $7x$
b) $x-10$
c) $(x+2) \times 5$ or $5(x+2) = 5x+10$

7-97 $4x+12 = 4(x+3)$