Chapter 3	Algebraic Expressions and Properties
Date:	3.4 The Distributive Property
Essential Question	How do you use mental math to multiply two numbers?

Find the product of 6 x 47 without setting the problem up vertically.

40 x 6 = 240	7 x 6 = 42	6
40	7	

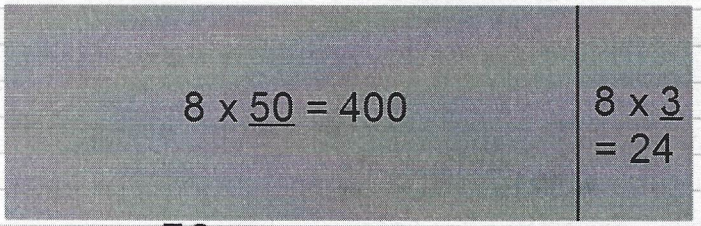
47 = 40 + 7

240 + 42 = 282 so 6 x 47 = 282

1) Use mental math to solve 8 x 53.

53

8



50 **+** **3**

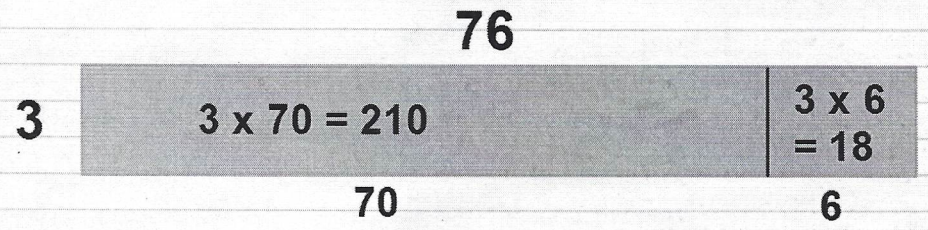
8 x 53 = 8 x 50 + 8 x 3

400 + 24

8 x 53 = 424

Complete number 1 on your notes page.

1) Use mental math to solve 3 x 76.



3 x 76 = 3 x 70 + 3 x 6

210 + 18

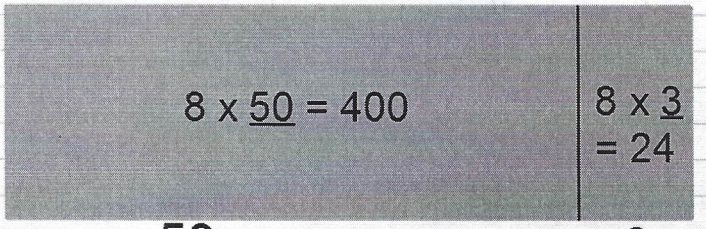
3 x 76 = 228

Vocab			
	Distributive Property-	when the number outside the parentheses uses the **multiplication** symbol, and the numbers inside the parentheses use **addition or subtraction**, multiply the outside number by each number inside the parentheses	Example 3(7 + 2) mult add or subt (3 x 7) + (3 x 2)

Let's look back at problem 1 in your composition book.
Write an expression using the distributive property.

53

8



50 + 3

8 x 53 = 8(50 + 3)

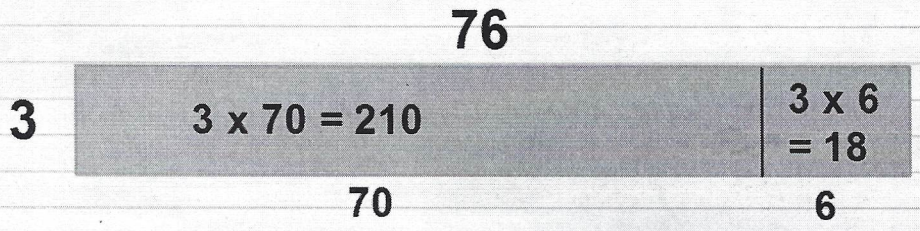
8(50) + 8(3)

400 + 24

8 x 53 = 424

← 8 is a factor in each part so put the 8 outside the parentheses.

Now look at number 1 on your note page.
Write an expression using the distributive property.



$3 \times 76 = 3(70 + 6)$ ← 3 is a factor in each part so put the 3 outside the parentheses.

$3(70) + 3(6)$

$210 + 18$

$3 \times 76 = 228$

Complete problem 2 in your composition book.

2) Write an expression using the distributive property to solve 5 x 41. Solve your expression.

5	5 x 40 = 200	5 x 1 = 1
	40	1

41

5(40 + 1)

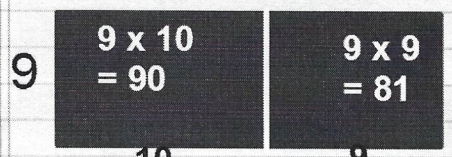
(5 x 40) + (5 x 1)

200 + 5

205

Complete problems 2 and 3 on your notes page.

2) 9 x 19



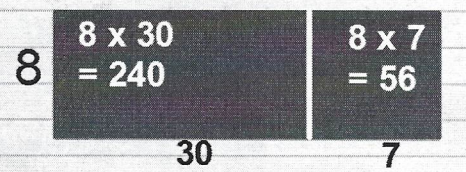
9(10 + 9)

(9 x 10) + (9 x 9)

90 + 81

171

3) 37 x 8



8(30 + 7)

(8 x 30) + (8 x 7)

240 + 56

296

Complete problems 3, 4, and 5 in your composition book.

3) $6(b + 7)$

$(6 \cdot b) + (6 \cdot 7)$

$6b + 42$

4) $4(3n - 5)$

$(4 \cdot 3n) - (4 \cdot 5)$

$12n - 20$

5) $9(6 + x + 2)$

$(9 \cdot 6) + (9 \cdot x) + (9 \cdot 2)$

$54 + 9x + 18$

$72 + 9x$

Complete problems 4, 5, and 6 on your notes page.

4) $3(11 - d)$

$(3 \cdot 11) - (3 \cdot d)$

$33 - 3d$

5) $10(9 + 3y)$

$(10 \cdot 9) + (10 \cdot 3y)$

$90 + 30y$

6) $7(2 + 6 - 4f)$

$(7 \cdot 2) + (7 \cdot 6) - (7 \cdot 4f)$

$14 + 42 - 28f$

$56 - 28f$

Look at your notes page about Like Terms.

Like Terms are terms that we can combine. The + or - goes with the term that follows the operation symbol.

$$5m + 19 - 2m + 6$$

$5m$ and $2m$ are like terms; they both have m

19 and 6 are like terms; they are both constants

$$5m + 19 - 2m + 6$$

$$3m + 25$$

Example $5m + 19 - 2m + 6 =$

$3m + 25$

Complete problems 6, 7 and 8 in your composition book.

6) $3x + 9 + 2x - 5$

$5x + 4$

7) $y + y + y$

$3y$

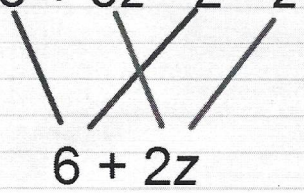
8) $7z + 2(z - 5y)$

$7z + 2z - 10y$

$9z - 10y$

Complete problems 7 and 8 on your notes page.

7) $8 + 3z - 2 - z$



$6 + 2z$

8) $3(b + 5) + b + 2$

$3b + 15 + b + 2$

$4b + 17$

Complete problems 9 and 10 in your composition book.

9) You and 2 of your friends are at an amusement park. You each ride 8 rides and play *g* number of games.

a) Use the Distributive Property to write and simplify an expression for the total number of activities your group does.

$3(8 + g)$

$24 + 3g$

b) How many activities does your group do if you each play 6 games?

$3(8 + 6)$

$24 + 18$

42 activities

10) A family of 5 people go to the movies. The cost of the movie is $8. Each person in the family gets a snack for *y* dollars.

Use the Distributive Property to write and simplify an expression for the total amount the family pays.

$5(8 + y)$

$40 + 5y$

Use your expression to tell how much the family pays if each snack was $4.

$5(8 + 4)$

$40 + 20$

$60