Poole Elementary 4th Grade Math Homework Helper

___ _____ .NBT.5

MCC.4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

In other words... I can multiply large numbers (2-, 3-, 4- digits) by one number and multiply a 2-digit number by another 2-digit number.

362	57	8,194	91
X 8	x 23	x 3	x 77
2,896	1,311	24,582	7,007

I also know... how to solve a multiplication problem in many different ways.

And... I can draw a "math picture" to show how I solve a problem. I can also explain how I solve a multiplication problem using math words.

For example: The farmer collected 23 dozen eggs from all the chicken coops on the farm. How many eggs did he collect in all? *The problem asks "in all" so it could be either addition or multiplication but I know it is multiplication because it is adding groups of the same amount -- or repeated addition. I know repeated addition is multiplication. I also know that a dozen means twelve. I re-write the problem as* 23 x 12 = ?

Break apart to a friendly number

23 x 12 =? I can break 12 into 10 + 2
23 x 10 = 230
23 x 2 = 46
I add the partial products to get the answer: 230 + 46 = 276
The farmer collected 276 eggs in all.

Distributive property

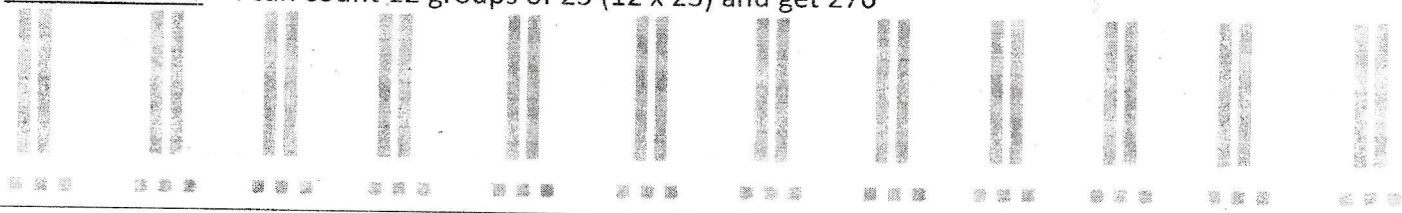
23 is the same as 4 groups of 5 and 3
5 x 12 = 60 (I have 4 groups of 60) 60 x 4 = 240 3 x 12 = 36
I add the partial products to get the answer: 240 + 36 = 276

Double and half

I double 23 and cut 12 in half to get 46 x 6
46 x 6 = 276
I can also make 40 + 6 now and multiply each by 6: 40 x 6 = 240 6 x 6 = 36
240 + 36 = 276

I can draw math pictures to show how I solve the problem.

Base-10 blocks – I can count 12 groups of 23 (12 x 23) and get 276



	20	3
10	200 (20 x 10)	30 (3 x 10)
2	40 (20 x 2)	6 (3 x 2)

Array Area Model

I can add all the partial products.
200 + 30 + 40 + 6 = 276
NOTE – this method can be used for any size number

Array

11 x 5 = ?

*****
*****
*****
*****
*****
*****
*****
*****
*****
*****
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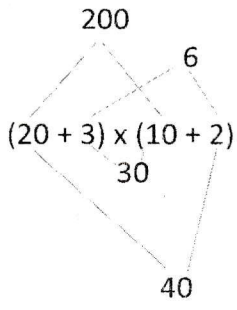
NOTE - This method is good for small numbers only.

I have 11 groups of 5. I can count by fives to figure out the answer is 55.

11 x 5 = 55

Using place value knowledge

23 x 12 = ?



200
40
30
+ 6
276

Some new math words I am using with this standard: *Some of these words are review*

Array – objects arranged in equal rows and columns

Associative property of multiplication – changing the grouping of the numbers being multiplied (factors) does not change the answer (product)

$$(7 \times 3) \times 4 = 7 \times (3 \times 4)$$
$$21 \times 4 = 7 \times 12$$
$$84 = 84$$

Commutative property of multiplication – changing the order of the numbers being multiplied (factors) does not change the answer (product)

$$7 \times 3 = 3 \times 7$$
$$21 = 21$$

Distributive property – you can multiply a number by a sum or multiply the number by each number being added (addends) and then add the answers (products)

$$7 \times 16 = 7 \times (10 + 6)$$
$$= (7 \times 10) + (7 \times 6)$$
$$= 70 + 42$$
$$= 92$$

You can help your child by having her/him show different strategies s/he learned in class to use as a study guide for this standard.

Use at least three different strategies to solve the following problems:

472 x 8 9,157 x 4 68 x 17 43 x 32