Name: _____   Mark: _____

8. Multiply with 3 Factors
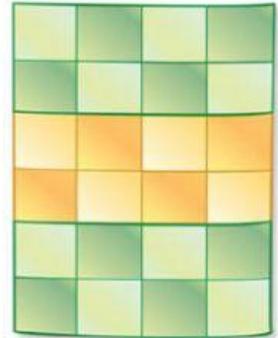
A. Visual Learning

How can you multiply 3 numbers?

Tony is joining 3 sections of a quilt.

Each section has 2 rows with 4 squares in each row.

How many squares does he use?

Find $3 \times 2 \times 4$.

One way	**Another way**
Find 3×2 first.	Find 2×4 first.
$(\textbf{3} \times \textbf{2}) \times 4$	$3 \times (\textbf{2} \times \textbf{4})$
$\textbf{6} \quad \times 4 = 24$	$3 \times \quad \textbf{8} \quad = 24$
6 rows, 4 squares in each row	3 sections, 8 squares in each section
He uses 24 squares in all.	He uses 24 squares in all.

You can change the grouping of the factors and the product will be the same.

Another Example

Find $4 \times 7 \times 2$.

$4 \times (7 \times 2) = 4 \times (\textbf{2} \times \textbf{7})$ Change the order of the factors.

$\qquad\qquad = (\textbf{4} \times \textbf{2}) \times 7$ Change the grouping of the factors.

$\qquad\qquad = \quad 8 \quad \times 7$

$\qquad\qquad = \qquad 56$

B. Vocabulary

order: _____   factor: _____

grouping: _____   product: _____

C. Independent Practice

In 1 – 4, fill in the blanks.

1. $2 \times (4 \times 2) = (2 \times 4) \times$ _____

2. $(3 \times 4) \times 3 = 3 \times ($ ____ $\times 3)$

3. $2 \times (2 \times 3) = (2 \times 2) \times$ _____

4. $(3 \times 2) \times 4 =$ ____ $\times (2 \times 4)$

In 5 – 6, find each product in two ways.

5. $4 \times 2 \times 3$

    1ˢᵗ way: Find 4×2 first.

    $(4 \times 2) \times 3$
    ↓

    _____ $\times 3 =$ _____

                               2ⁿᵈ way: Find 2×3 first.

                                 $4 \times (2 \times 3)$
                                 ↓

                               $4 \times$ ____ $=$ _____

6. $5 \times 2 \times 4$

    1ˢᵗ way: Find 5×2 first.

    $(5 \times 2) \times 4$
    ↓

    _____ $\times 4 =$ _____

                                 2ⁿᵈ way: Find 2×4 first.

                                 $5 \times (2 \times 4)$
                                 ↓

                               $5 \times$ _____ $=$ _____

7. There are 2 buildings. Each building has 5 floors.

There are 9 rooms on each floor.

How many rooms are there in 2 buildings?

•*Find?*	•*Complete a bar diagram.*	•*Write an equation and*
_____	_____	*word answer.*
_____		
	$\boxed{9}\ \boxed{9}\ \boxed{9}\ \boxed{9}\ \boxed{9}\ \boxed{\ }\ \boxed{\ }\ \boxed{\ }\ \boxed{\ }\ \boxed{\ }$	_____
•*Know?*	⬇ ⬇	_____
_____	1st building 2nd building	_____
_____		
_____		

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