

Multiplication Properties

The properties of multiplication can help you to multiply two or more numbers.

Zero Property The product of any number and 0 is 0.	Identity Property The product of any number and 1 is that number.
Associative Property This is the grouping property. When you have at least 3 numbers, you can group numbers in any order using parentheses. The product stays the same.	Commutative Property You can multiply two numbers in any order and arrive at the same product.

Find the product. Tell which property you used.

0×9 .

- Notice there have only two factors, so there is no need to solve using the Associative Property.
- Neither of the factors are 1, so there is no need to solve using the Identity Property.
- One of the factors is 0, so use the Zero Property to solve. Remember that the product of any number and 0 is 0.

So, $0 \times 9 = 0$, and the property used to solve is the Zero Property.

Examples:

A- Find the product. Tell which property you could use.

1) $0 \times 7 =$ 0, zero property

2) $8 \times 1 =$ 8, identity property

3) $9 \times 2 =$ 18, commutative property

4) $(5 \times 2) \times 7 =$ 70, associative property

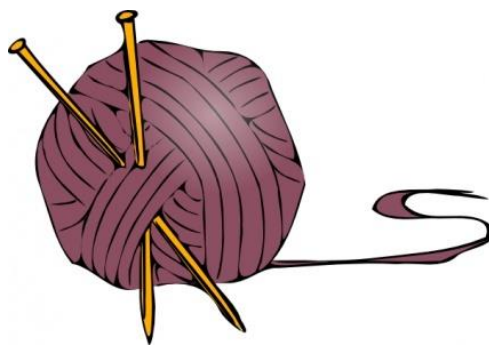
5) $6 \times 0 =$ 0, zero property

6) $(3 \times 3) \times 8 =$ 72, associative property

My Real Life

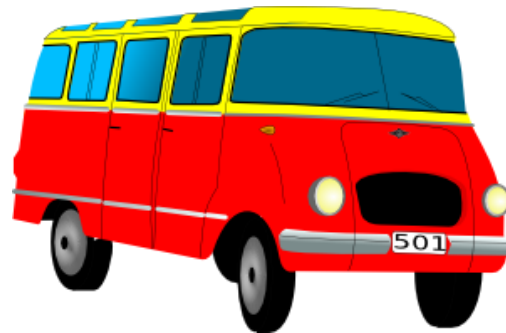
A) Nina knit 3 sweaters. She used 4 balls of yarn for each sweater. How many balls of yarn did Nina use?

$3 \times 4 = 12$ balls of yarn



B) A school rents 4 vans. Each van carries 9 people. What is the total number of people the school-rented vans can carry?

$4 \times 9 = 36$ people



C) Mariam bought 2 necklaces for 60 Aed each and 3 rings for 40 Aed each. How much money did Mariam spend in all?

Step 1: $2 \times 60 = 120$ Aed

Step 2: $3 \times 40 = 120$ Aed

Step 3: $120 + 120 = 240$ Aed

So, Mariam spent 240 Aed.



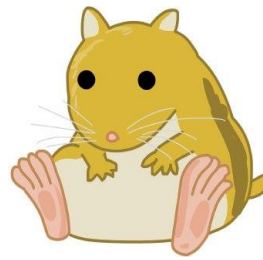
D) Mr. Smith's four children all have pets. Three of his children have 2 hamsters each. One child has 3 goldfish. How many pets in all do Mr. Smith's children have?

Step 1: $3 \times 2 = 6$ pets

Step 2: $1 \times 3 = 3$ pets

Step 3: $6 + 3 = 9$ pets

So, Mr. Smith's children have 9 pets



E) There are 6 clowns with balloons. Four of the clowns have 8 balloons each. One clown has only 3 balloons. How many balloons in all do the clowns have?

Step 1: $4 \times 8 = 32$ balloons

Step 2: $1 \times 3 = 3$ balloons

Step 3: $32 + 3 = 35$ balloons

So, the clowns have 35 balloons.

