

Multiplication by a Whole Number

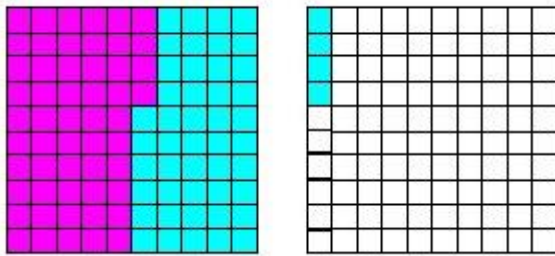
The red kangaroo, the world's largest marsupial, uses its tail for balance when jumping. Its tail is about 0.52 times as long as its body. Its body is about 2 meters long. How long is its tail?

Make a model to show how to multiply 2 by 0.52.

What is 2×0.52 ?

STEP 1

Use hundredths models.
Shade 0.52, or 52 hundredths.
Use a different color each time.



STEP 2

Count the number of shaded hundredths. There are 104 shaded hundredths. This is 1 whole and 4 hundredths.

$$\text{So, } 2 \times 0.52 = 1.04$$

Examples:

A- Find the product.

1) 5×0.76

$$\begin{array}{r} 0.76 \\ \times 5 \\ \hline 3.80 \end{array}$$

2) 0.44×3

$$\begin{array}{r} 0.44 \\ \times 3 \\ \hline 1.32 \end{array}$$

3) 0.24×6

$$\begin{array}{r} 0.24 \\ \times 6 \\ \hline 1.44 \end{array}$$

4) 0.16×7

$$\begin{array}{r} 0.16 \\ \times 7 \\ \hline 1.12 \end{array}$$

You can use patterns to place the decimal point in a product.

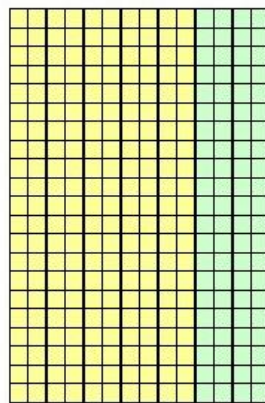
Factors		Products
$3 \times$	$1 =$	3
$3 \times$	$0.1 =$	0.3
$3 \times$	$0.01 =$	0.03

$$3 \times 1 = 3 \quad \leftarrow \text{no decimal places in factors}$$

$$3 \times 0.1 = 0.3 \quad \leftarrow \text{one decimal place in factors}$$

$$3 \times 0.01 = 0.03 \quad \leftarrow \text{two decimal places in factors}$$

The number of decimal places in the factors equals the number of decimal places in the product.



STEP 1: Multiply by the ones.

$$10 + 4$$

$$\begin{array}{r} 21 \\ \times 4 \\ \hline 84 \end{array}$$

STEP 2: Multiply by the tens. 21

$$\begin{array}{r} 21 \\ \times 10 \\ \hline 210 \end{array}$$

Examples:**C- Use patterns to find the product.**

5) $3.45 \times 10 = 34.5$

$3.45 \times 100 = 345$

$3.45 \times 1000 = 3450$

6) $0.529 \times 10 = 5.29$

$0.529 \times 100 = 52.9$

$0.529 \times 1000 = 529$

My Real Life

An empty soda cup costs 0.35 dirhams. How much will 1000 cups cost?

$0.35 \times 1000 = 350 \text{ dirhams.}$

