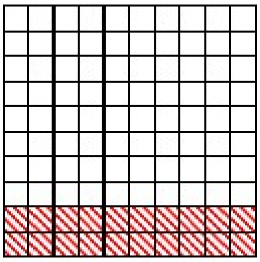
Model Multiplication by a Decimal

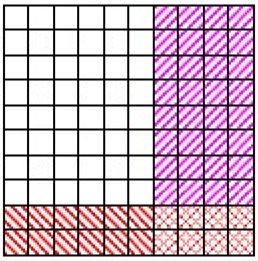
To multiply 0.2 × 0.4, a 1-by-10 model will help.

STEP 1
Draw diagonal lines through the bottom 2 rows.



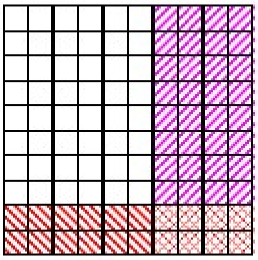
The 2 rows represent 0.2.

STEP 2
Draw diagonal lines through 4 columns.



The 4 columns represent 0.4.

STEP 3
The overlapping squares that have an × in them show the product of 0.2 × 0.4.



The 8 squares with ×'s represent 0.08.

The product of 0.2 × 0.4 = 0.08.

<u>Examples:</u>

A- Find the product.

1) 0.14
x0.02
2.8

2) 18.00
x 0.64
72
+1080
11.52

3) 2.53
x 1.7_
1771
+2530
4.301

4) 0.62
x3.8
496
+1860
2.356

How many decimal places are in the product of 0.32 and 0.02?

STEP 1

Add the number of decimal places from each factor.

0.32 × 0.02 = ?

2 places + 2 places = 4 places

$$\begin{array}{r} 0.3\ 2 \\ \times\ 0.0\ 2 \\ \hline 0.\underline{\qquad\quad} \end{array}$$

STEP 2

Multiply the numbers just like whole numbers. To have 4 decimal places, you have to add 2 zeros before the 64.

$$\begin{array}{r} 0.3\ 2 \\ \times\ 0.0\ 2 \\ \hline 64 \\ +\ 000 \\ \hline 0.0\ 0\ 6\ 4 \end{array}$$

Examples:

B- How many decimal places are in the following products?

5) 0.45 x 0.005 → **2 places + 3 places = 5 places**

6) 0.1 x 0.12 → **1 place + 2 places = 3 places**

7) 0.004 x 0.376 → **3 places + 3 places = 6 places**

8) 0.8 x 0.4 → **1 place + 1 place = 2 places**