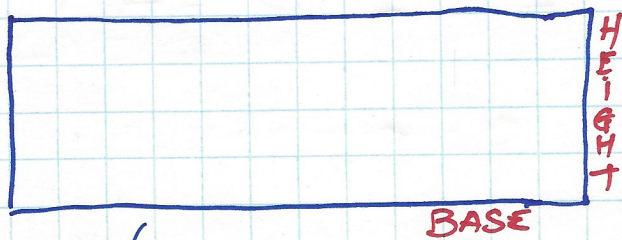# Unit 3.4 Multiplying Decimals

• Before we talk about how to actually multiply decimals, Let's Remember:

AREA
↳ "INSIDE"

PERIMETER
↳ "AROUND" OUTSIDE
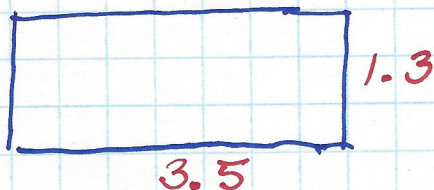
HEIGHT

BASE

↳ Rectangles

have an AREA of Base × height
or
length × Width

$A_{\square} = Base \times Height$

Because the Area of a Rectangle is a multiplication, then

↳ IT TURNS OUT, RECTANGLES ARE USED TO MODEL MULTIPLICATION. Look at this!

1.3

3.5

So: • BASE TEN BLOCKS, WHEN USED, MAKE UP RECTANGLES

• Multiplication is modelled by the Rectangle's area

$AREA_{\square} = 3.5 \times 1.3$

OK, WITH THAT OUT OF THE WAY, LET'S LEARN
TO MULTIPLY DECIMALS...

1. To multiply decimals, pretend the decimal points ARE not present, and then...

2. Multiply as you normally do

3. then, Count up the Total amount of decimals, and finally...

4. From Right to left, place the decimal point immediately after the decimal or digit that Represents the total amount of decimals counted.

Example

1. 1.7×2.5

• Set up → $1.7 \times$
                2.5

There are a total of 2 decimal places

• You are going to Temporarily "get Rid" of the decimal points

$(1)(3)$
$17 \times$
25
$\overline{85}$ +
34
$\overline{4.25}$

NOW COUNT 2 FROM Right TO left
Place the point

• Now, multiply → $)4.25($

2. 6.3 x 1.8

Set it up :
$$6.3 \times$$
$$1.8 \longrightarrow$$

Count the decimals:

2

$$(2)$$

$$\begin{array}{r} 63 \times \\ 18 \\ \hline 504 \\ 63 \\ \hline 1134 \end{array}$$

now, "ignore" the decimal point

11.34

→ Now count 2 from Right to left; Place decimal point there!

3. 0.6 x 12.52

Set it up →

$$12.52 \times$$
$$0.6 \longrightarrow$$

count decimals:

3

"ignore" the decimal point

Solve.

$$\begin{array}{r} 1252 \times \\ 06 \\ \hline 7512 \\ 0000 \\ \hline 07.512 \end{array}$$
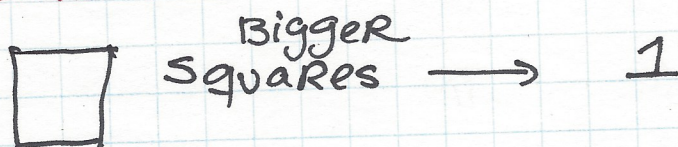
Place the decimal after the 3rd digit (from Right to left)
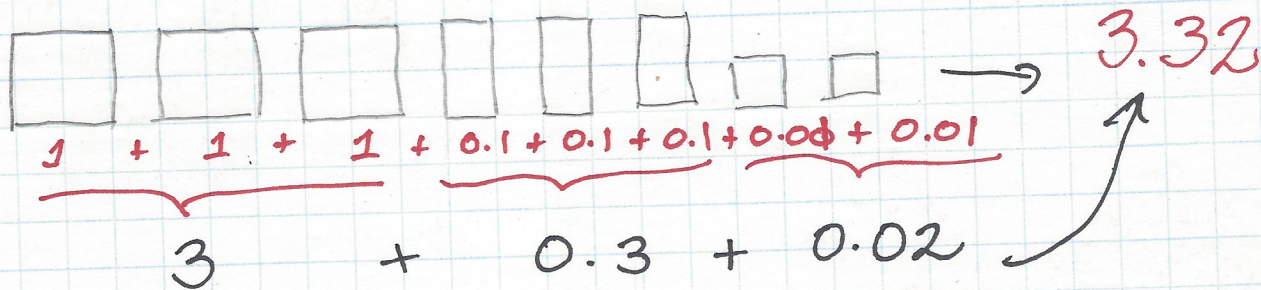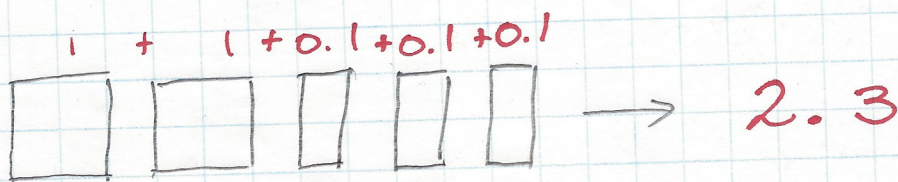
∴ $\boxed{7.512}$

Using Base Ten Blocks :

- Base ten blocks are a great Tool used to multiply decimals
- this is Because they model Rectangles
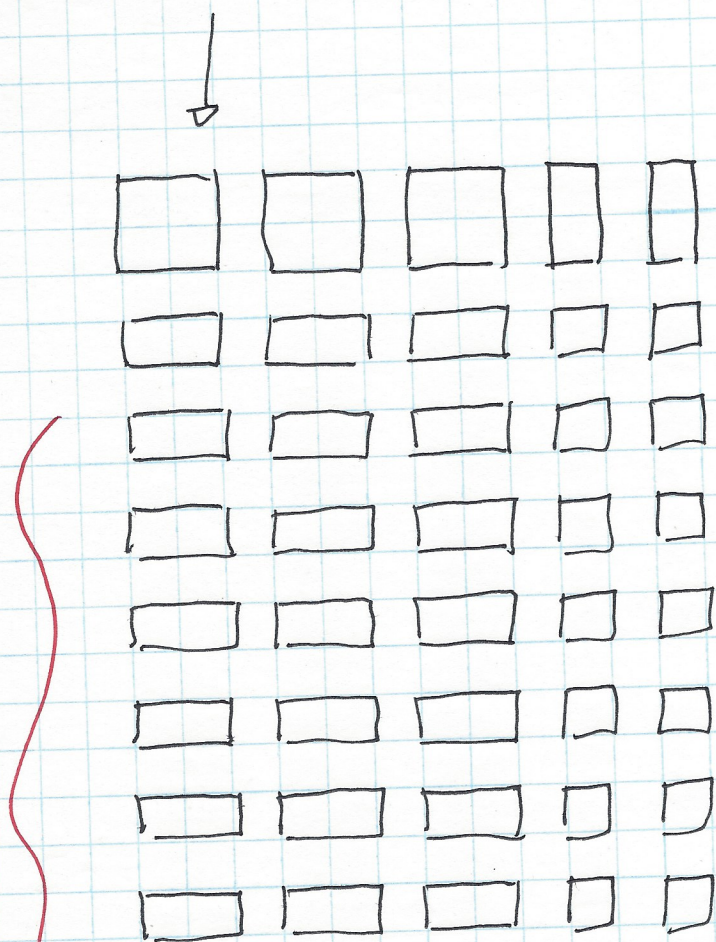- As we mentioned, Rectangles have areas which are Calculated by multiplication

Remember:

Bigger Squares $\longrightarrow$ 1

Rectangles $\longrightarrow$ 0.1

Smaller Squares $\longrightarrow$ 0.01

So:

$1 + 1 + 0.1 + 0.1 + 0.1$ $\longrightarrow$ 2.3

$1 + 1 + 1 + 0.1 + 0.1 + 0.1 + 0.01 + 0.01$ $\longrightarrow$ 3.32

$$3 + 0.3 + 0.02$$

Let's see how Base Ten Blocks can be used to Multiply Decimals:

1. 3.25 × 1.7

Mistake! (ignore this)

$3 \boxed{1} = 3 \times 1 = 3$

$23 \boxed{0.1} = 23 \times 0.1 = 2.3$

$14 \boxed{} = 0.14$
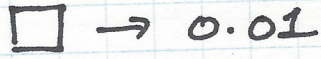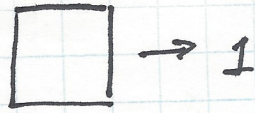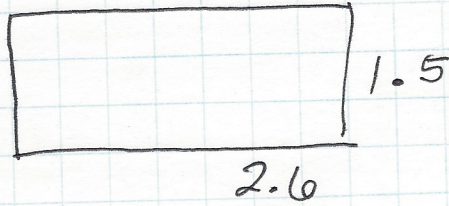$\quad\;\; 0.01$

THIS FORMS A RECTANGLE OF BASE 3.25 AND HEIGHT 1.7

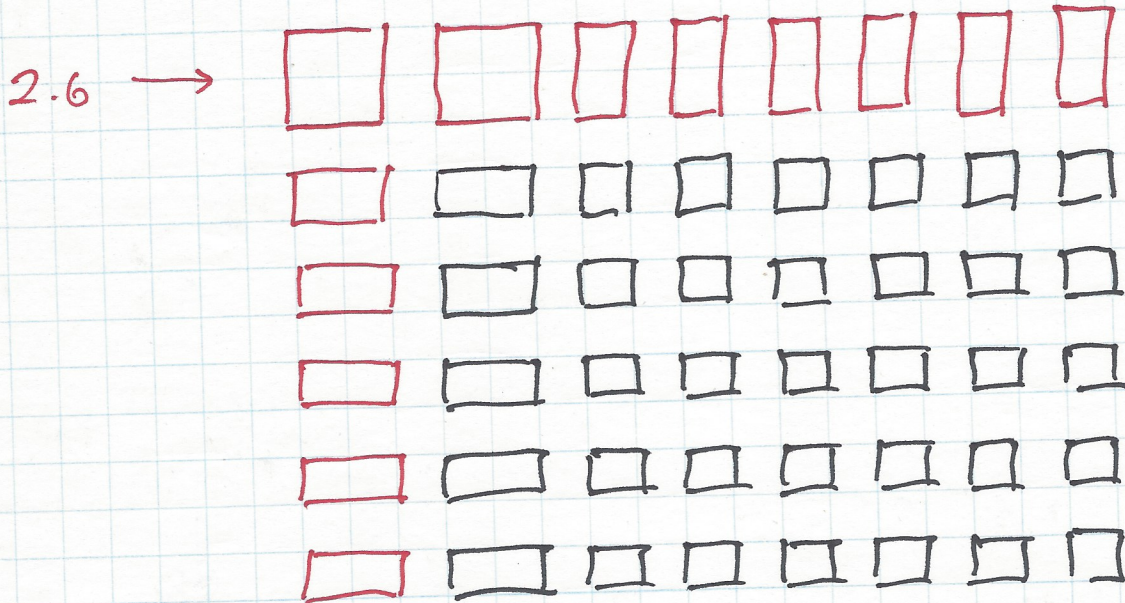So → $3 + 2.3 + 0.14 = \boxed{5.44}$

2. 2.6×1.5

Set up a Rectangle

$\square \rightarrow 1$

$\square \rightarrow 0.1$

$\square \rightarrow 0.01$

1.5

2.6

So, Use Base Ten Blocks and do the Rectangle:

2.6 $\rightarrow$

Large

$2 \square = 2 \times 1 = 2$

$16 \square = 16 \times 0.1 = 1.6$

$30 \square = 30 \times 0.01 = 0.3$

$\rightarrow$ total: $2 + 1.6 + 0.3$

$\rightarrow 3.9$

check it using
a calculator $\leftarrow$ Same answer!