

Concept: Multiplication and Division of Decimals

Name: _____

PART A: COMPUTER COMPONENT

Instructions:

In follow the **Content Menu** path:

Fractions > Multiplication and Division of Decimals



Work through all Sub Lessons of the following Lessons **in order**:

- *Recall the Basics*
- *Multiply by Repeated Addition*
- *Special Case - Multiply a Decimal by a Whole Number*
- *Multiply by Partial Products- Area*
- *Distributive Method*
- *Standard Method*

NOTE: You will not be finishing the entire section before stopping to complete some **OFF COMPUTER EXERCISES**.



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

When you reach the end of the lesson *Standard Method* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

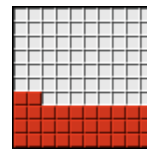
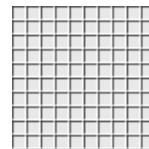
NOTES

1. Multiply by Repeated Addition

We think...

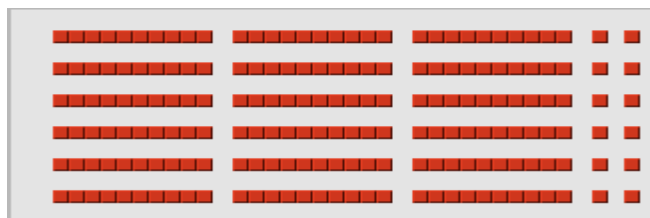
_____ of the large squares are *white*.

_____ of the large squares are *red*.



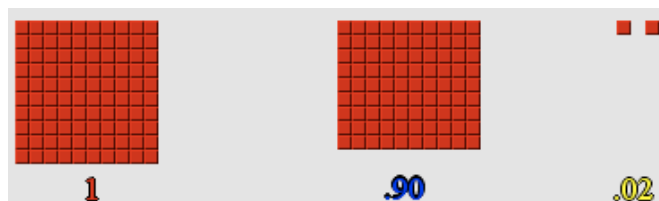
We want to multiply 6×0.32 .

This means, we want _____ groups of 0.32.

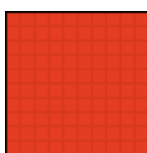


$$6 \times 0.32 = 0.32 + 0.32 + 0.32 + 0.32 + 0.32 + 0.32$$

$$= 1.92$$



2. Special Case: *Multiply a Decimal by a Whole Number*



Large Red Square = 1

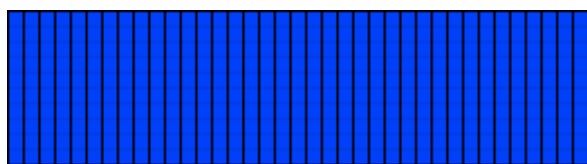
We want to multiply 2×3.7

This means, we want _____ groups of 3.7.



3.7 Ones

We can also say that the entire large rectangle is _____ tenths.



37 Tenths

When we multiply 2×3.7 ...is the same as multiplying 2×37 tenths.

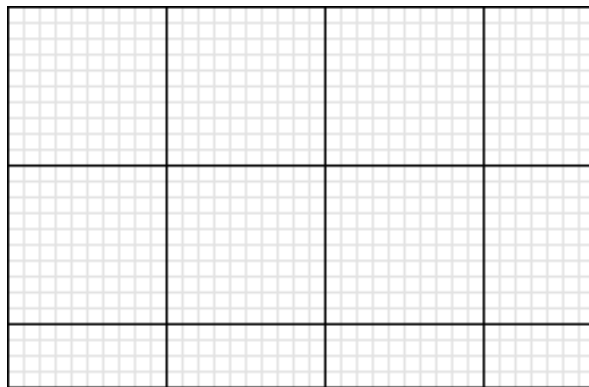
$$\begin{array}{r} 37 \text{ Tenths} \\ \times 2 \\ \hline 74 \text{ Tenths} = 7.4 \text{ Ones} \end{array}$$

3. Multiply by Partial Products

(a) We want to multiply 2×3.7 .

This means, we want _____ groups of 3.7.

We want to find the _____ of the rectangle.



To help us:



= 1

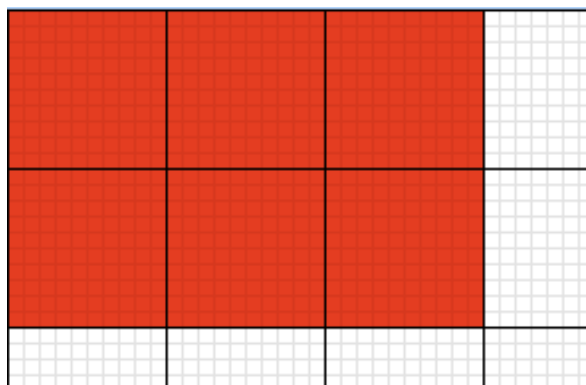


= 0.1 or 1 tenth

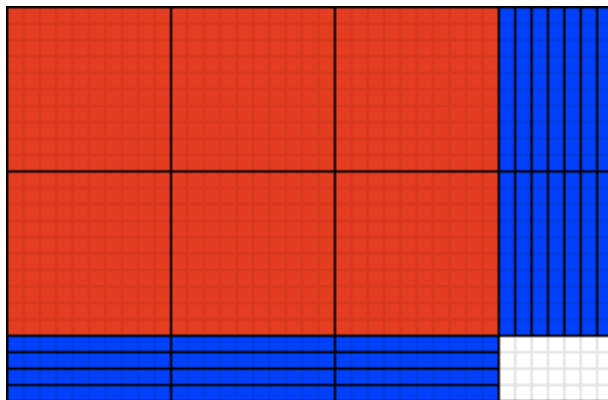


= 0.01 or 1 hundredth

➤ First, we add as many _____ blocks as possible to the rectangle.

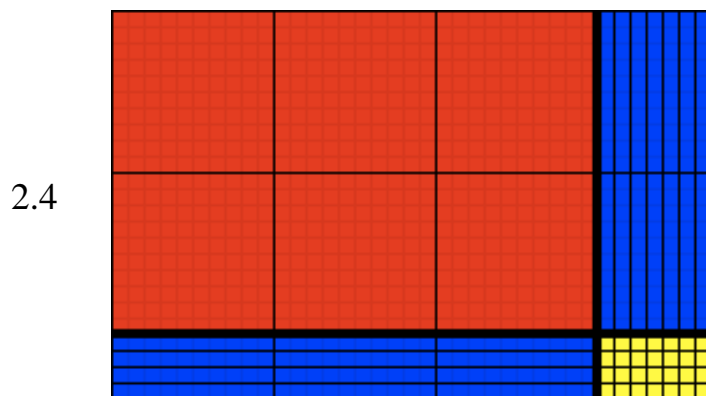


- Then, we add as many tenths blocks as possible to the rectangle.



- Now, we add as many hundredths blocks as possible to the rectangle.

3.7



We want to multiply 2.4×3.7 .

*We want to find the **AREA** of the rectangle.*

Part 1

= (_____ \times _____) Hundredths

=

Part 2

= (_____ \times _____) Tenths

=

Part 3

= (_____ × _____) Tenths

=

Part 4

= (_____ × _____) Ones

=

 $2.4 \times 3.7 = \text{Area of Part 1} + \text{Area of Part 2} + \text{Area of Part 3} + \text{Area of Part 4}$

= _____

= _____

 (b) We want to multiply 2.2×4.2 (without blocks)

		4.2			
		× <u>2.2</u>			
Hundredths (_____ × _____)	→				_____
Tenths (_____ × _____)	→				_____
Tenths (_____ × _____)	→				_____
Ones (_____ × _____)	→				_____
	Product				_____

4. Multiply by the Distributive Method

 The Distributive Method simply **distributes** numbers, so that they are easier to work with.

 We want to multiply 1.3×3.21

$$\begin{array}{r} 3.21 \\ \times 1.3 \\ \hline \end{array}$$

Part 1

$$\begin{array}{r}
 3.21 \longrightarrow \\
 \times 1.3 \longrightarrow
 \end{array}
 \qquad
 \begin{array}{l}
 (3 + 0.2 + \underline{\hspace{2cm}}) \\
 (1 + \underline{\hspace{2cm}})
 \end{array}$$

Part 2

$$\begin{array}{r}
 (3 + 0.2 + 0.01) \\
 \times (1 + 0.3)
 \end{array}
 \qquad
 \text{which is the same as}
 \qquad
 (1 + 0.3) \times (3 + 0.2 + 0.01)$$

Part 3

$$\begin{array}{c}
 \overbrace{\hspace{10em}} \\
 \downarrow \quad \downarrow \quad \downarrow \\
 (1 + \quad 0.3) \times (3 + 0.2 + 0.01) \\
 \underbrace{\hspace{10em}} \\
 \uparrow \quad \uparrow \quad \uparrow
 \end{array}$$

Each number, in the first set of brackets is multiplied by every number in the second set of brackets. Therefore, in this case, we should have 6 products to add for our final answer.

Part 4

$$\begin{array}{r}
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 + \\
 \underline{\hspace{2cm}}
 \end{array}$$

Final Answer

5. Standard Method

You may use the computer prompts to assist you with this. *(If necessary)*

$$\begin{array}{r}
 3.7 \\
 \times 2.4 \\
 \hline
 \end{array}$$

Reflection

Which strategy do you feel is the best suited to your learning style? Why?

OFF COMPUTER EXERCISES

For this first set of questions, try to use a different strategy each time.

1. Multiply the following.

(a) 3.2×6.3

(b) 2.5×3.3

(c) 4.12×2.3

(d) 1.6×3.22

2. Complete the following problems. *You may use your preferred method for these.*

(a) Isabella lost the results of her calculation multiplying 0.512×2.04 . Based on her notes, she knows that it is one of 1.04882, 1.04448, 10.4448, or 0.10448. Alexander immediately tells her the answer, without calculating. *Which number is the answer? How did he know?*

(b) Jamal earns \$6.25/hr working at the local *Foot Zone*. His Saturday shift starts at 9 am and concludes at 1:30 pm. *How much money will Jamal earn before taxes?*

(c) If coffee costs \$8.25 per pound, *how much did Archie pay for 3.5 pounds?*

(d) Two numbers multiply together to get 15.4. *What might the two numbers be?*

(e) I multiplied two decimal numbers on a calculator and the answer was a whole number. *What might the two decimal numbers be?*

(f) $?.? \times ?.? = ?.?$ *What might the missing numbers be?*

3. *After completing some questions, which strategy/method would you prefer to use?
Why?*
