G5-M4-Lesson 18

1. Multiply using both fraction form and unit form.

a. $2.3 \times 1.6 = \frac{23}{10} \times \frac{16}{10}$

$= \frac{23 \times 16}{10 \times 10}$

$= \frac{368}{100}$

$= 3.68$

	2	3	*tenths*
×	1	6	*tenths*
	1	3	8	
+	2	3	0	
	3	6	8	*hundredths*

I write the decimals (2.3 and 1.6) in unit form (23 tenths and 16 tenths).

I express the decimals (2.3 and 1.6) as fractions ($\frac{23}{10}$ and $\frac{16}{10}$), and then I multiply to get $\frac{368}{100}$, or 3.68.

I multiply the 2 factors as if they are whole numbers to get 368. The product's unit is hundredths because a tenth times a tenth is equal to a hundredth.

b. $2.38 \times 1.8 = \frac{238}{100} \times \frac{18}{10}$

$= \frac{238 \times 18}{100 \times 10}$

$= \frac{4{,}284}{1{,}000}$

$= 4.284$

	2	3	8	*hundredths*
×		1	8	*tenths*
	1	9	0	4	
+	2	3	8	0	
	4,	2	8	4	*thousandths*

I express the decimals (2.38 and 1.8) in unit form (238 hundredths and 18 tenths).

A hundredth times a tenth is a thousandth.

2. A flower garden measures 2.75 meters by 4.2 meters.

   a. Find the area of the flower garden.

$2.75\ \text{m} \times 4.2\ \text{m} = 11.55\ \text{m}^2$

The area of the flower garden is 11.55 *square meters.*

I multiply the length times the width to find the area of the garden.

		2	7	5	*hundredths*
×			4	2	*tenths*
			5	5	0
+	1	1	0	0	0
	1	1,	5	5	0 *thousandths*

A hundredth times a tenth is a thousandth.

$$\frac{1}{100} \times \frac{1}{10} = \frac{1 \times 1}{100 \times 10} = \frac{1}{1{,}000}$$

   b. The area of the vegetable garden is one and a half times that of the flower garden. Find the total area of the flower garden and the vegetable garden.

$11.55\ \text{m}^2 \times 1.5 = 17.325\ \text{m}^2$

	1	1	5	5	*hundredths*
×			1	5	*tenths*
		5	7	7	5
+	1	1	5	5	0
	1	7,	3	2	5 *thousandths*

I find the area of the vegetable garden by multiplying the flower garden's area by 1.5, or 15 tenths.

$11.55\ \text{m}^2 + 17.325\ \text{m}^2 = 28.875\ \text{m}^2$

	1	1.	5	5	0
+	1	7.	3	2	5
	2	8.	8	7	5

I add the 2 areas together to find the total area.

The total area of the flower garden and the vegetable garden is $28.875\ \text{m}^2$.