Topic C Quiz Prep (Lessons 14 – 19)

Item 1: Estimating the product.

In this topic we learned how important it is to estimate before multiplying. The estimate gives us a reasonable product which helps us to determine where the decimal is placed in the actual answer. In this problem you will be given several equations that you need to estimate and find the product. Look over these examples. Play attention to how fraction form and decimal form helps to estimate.

1.8 x 34	0.09 x 0.17	0.96 x 0.3	0.58 x 0.11	8.95 x 0.09
↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓
2 x 30	0.1 x 0.2	1 x 0.3	0.6 x 0.1	9 x 0.1
	1/10 x 2/10	1 x 3/10	6/10 x 1/10	9 x 1/10
≈ 60	**≈ 0.02**	**≈ 0.3**	**≈ 0.06**	**≈ 0.9**

Practice: 1.7 x 41 0.07 x 0.23 0.99 x 0.6 3.97 x 0.08

Item 2: Multiply Decimals by Whole Numbers

In this topic we learned several different methods to multiply decimals including:

- *Number lines*
- *Area models*
- *Place Value Chart*
- *Break apart method*
- *Fraction Form*
- *Unit Form*
- *Standard Form / Vertical Form*

It is recommended that you go back into the Problem Sets for Lessons 9 - 14 and practice the different ways. On the quiz you may use any way that you are most comfortable.

5 x 0.08

Fraction Form:

5 x 8/100

40/100

0.40

Vertical Form:

$$\begin{array}{r} {\scriptstyle 4} \\ 0.08 \\ \times \quad 5 \\ \hline 0.40 \end{array}$$

hundredths

hundredths

3,000 x 0.28

Estimate: 3,000 x 0.3

3,000 x 3/10

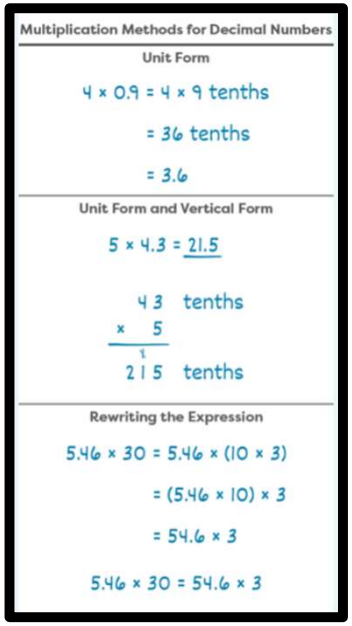
≈ 900.0

Vertical Form:

$$\begin{array}{r} 3{,}000 \\ \times \quad .28 \\ \hline 24000 \\ + \quad 60000 \\ \hline 840.00 \end{array}$$

hundredths

hundredths



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Item 3: Unit Form / Standard Form / Fraction Form

0.7 x 0.04

0.7 x 0.04 = 7 tenths x 4 hundredths

= 28 thousandths

= 7/10 x 4/100 = 28/1,000

= 0.028

0.23 x 0.5

0.23 x 0.5 = _____ _____ x _____ _____

= _____ _____

= _____

= _____

Item 4: Multiply Decimals by Decimals

Estimate: 6 x 4 ≈ 24

6.3 x 4.2 = 26.46

$\frac{63}{10} \times \frac{42}{10} = \frac{2646}{100}$

```
  63
x 42
----
 126
+2520
----
2646
```

Estimate: 6 x 0.1 ≈ .6

5.9 x 0.08 = 0.472

$\frac{59}{10} \times \frac{8}{100} = \frac{472}{1{,}000}$

```
   7
  59
x  8
----
 472
```

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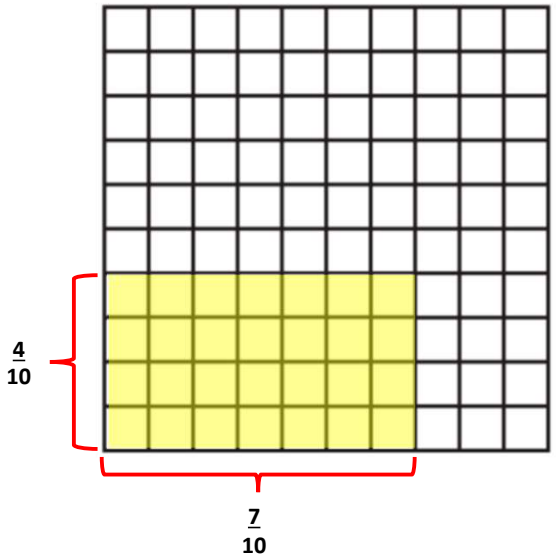
Item 5: Area Model for Decimal Multiplication

We have used area models in the past for fraction multiplication. So, if we write our decimals as fractions remembering that the multiplication sign is the word "of", we can use an area model to multiply decimals.

First, show 7/10 horizontally.
Next, show 4/10 vertically.
Shaded in the boxed in area.

Rewriting the decimals as fractions shows us that our area model is correct.



0.4 x 0.7

4/10 of 7/10

$$\frac{4}{10} \times \frac{7}{10} = \frac{28}{100}$$

0.28

Item 6: Decimal Word Problem

*Bryan walks **8.9 miles** over **2 days**.*
*He walks **4 tenths** of the distance on the **first day**.*
*How many miles did Bryan walk on the **second day**?*

8.9 x 0.4

$$\frac{89}{10} \times \frac{4}{10} = \frac{356}{100}$$

First day = **3.56 miles**

Second day = **5.34 miles**

$$\begin{array}{r} 8.9 \\ -\ 3.56 \\ \hline \mathbf{5.34} \end{array}$$