Name: _______________________

**Multiplication and Division of Decimals Study Guide**

**Steps to multiplying or dividing decimals by powers of ten (10, 100, 1,000):**

**Step 1:** Underline the basic fact and multiply the basic fact.

**Step 2:** Move the decimal point to the right once for each zero you are multiplying by.

**Step 3:** Add Zeros for place holders as needed.

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1. The average U.S. prices for barley, oats, and wheat for the year 2002 are listed in the table below. Complete the chart by finding the cost of 10, 100, and 1,000 bushels for each crop.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Year: 2002 prices for each bushel</th>
<th>Price for 10 bushels</th>
<th>Price for 100 bushel</th>
<th>Price for 1,000 bushel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>$3.18</td>
<td>$31.8</td>
<td>$318.</td>
<td>$3,180</td>
</tr>
<tr>
<td>Oats</td>
<td>$2.12</td>
<td>$21.2</td>
<td>$212.</td>
<td>$2,120</td>
</tr>
<tr>
<td>Wheat</td>
<td>$4.26</td>
<td>$42.6</td>
<td>$426.</td>
<td>$4,260</td>
</tr>
</tbody>
</table>

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2. **Steps to multiplying a decimal by a whole number:**

**Step 1:** Multiply like normal.

**Step 2:** Count the decimals points in both factors. (The total is the number of decimal place in the product.)

**Step 3:** Write the decimal point in your product.

Ex. \[4.3 \times 5 = 21.5\]
2. Josh made $6.72 on the first day he set up his lemonade stand. If he makes the same amount each day for 6 days, how much money will he have? (2 points)

**Work:**

\[
\begin{align*}
4 \cdot 6 & \rightarrow 0 \\
6.72 & \rightarrow 0 \\
\text{Product} & = 40.32
\end{align*}
\]

**Explain:**

Josh will have $40.32 from his lemonade stand. I know this because I multiply $6.72 and 6. I got a product of $40.32.

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**Steps to multiplying a decimal by a decimal:**

**Step 1:** Set up the problem like a normal multiplication problem. You do not line up the decimal points and place values.

**Step 2:** Make sure the greater factor is on the top.

**Step 3:** Multiply.

**Step 4:** Count the number of decimal numbers in each factor.

**Step 5:** Use the total number of decimal places in each factor to place the factors in your product.

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3. Enter your answer in the box.

\[
7.2 \times 0.3 = 2.16
\]

4. Enter your answer in the box.

\[
2.72 \times 4.84 = 13.1448
\]
5. A company sells tablets for $412.00 each. What is the total amount of money the company earns from selling 856 phones?

**Part A**
Enter the answer in the box.

\[ \$352,472 \]

**Part B**
The parts to build these tablets cost $212.00 per tablet. What is the total cost of parts to build 856 tablets?

Enter the answer in the box.

\[ \$181,472 \]

6. Draw a model for the product of 0.6 x 0.3 and explain how you solved. (2 points)

I solved 0.6 x 0.3 by first filling in 6 rows vertically for the 0.6 and then filling in 3 rows horizontally for 0.3 and got a product of 0.18 for the rows that were both filled in vertically and horizontally.

.6 x .3 = .18

\[ \text{product} \]
7. The multiplication problem below is incorrect.

```
4.21
x 8.3
---
1263
3368
---
4631
```

Explain the error in the problem and find the correct product. (2 points)

**Work:**
4.21 \[ \times \] 8.3
---
1263
33680
---
34943

**Explain:**
The error in the problem is the person did not add the place holder. The correct product is 34.943.

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Steps to dividing decimal numbers by whole numbers:

**Step 1:** Place the decimal point in the quotient above the decimal point in the dividend.

**Step 2:** Divide as you would with whole numbers.

**Step 3:** Check your answer by multiplying your quotient with your divisor.

```
5 \[ \div \] 600
5 x 300
---
-3000
00
```
8. Enter your answer in the box.

\[
\begin{array}{c}
25.2 \div 6 \\
\hline
4.2
\end{array}
\]

9. Alice and her three sisters spent $50.75 on a birthday present for their grandmother.

**Part A**
Each person will chip in the same amount. How much will each person pay? Show your work.

Each person will pay $12.69 for the birthday present. I know this because I divided 50.75 and 4 which I got a quotient of 12.6875. Then I rounded to the nearest hundredth which I got 12.69.

**Part B**
Alice’s mom decided to chip in $20. Now how much will Alice and her sisters each pay if they share the amount of the birthday present. Show your work.

Each person will pay $7.69.
Steps to Dividing Decimals by Decimals:

Step 1: Make the divisor (outside number) a whole number by moving the decimal to the right as many places as it takes to make it a WHOLE NUMBER.

Step 2: Move the decimal point in the dividend the same number of places as the divisor.

Step 3: Place the decimal point in the answer (quotient) lined up with the decimal point in the dividend.

Step 4: Divide like normal.

Ex.

10. Which division problem has a quotient of 5.2? Circle all that apply.

A. 11.96 ÷ 2.3
B. 25.2 ÷ 6
C. 35.36 ÷ 6.8
D. 25.48 ÷ 4.9

10. Enter your answer in the box.

45.5 ÷ 5.6  

\[
\begin{array}{c}
5.4 \times 5.5 \times 0.06 \\
4.8 \times 1 \times 1.2 \times 1.2 \\
-5.6 \times 1.2 \times 1.2 \\
-5.6 \times 1.2 \times 1.2 \\
-1.2 \times 1.2 \times 1.2 \\
-1.2 \times 1.2 \times 1.2 \\
\hline
8.125
\end{array}
\]