

# 5<sup>th</sup> Grade Mission I Notes

Place Value Chart  
Millions thru Thousandths

x 1,000,000	x 100,000	x 10,000	x 1,000	x 100	x 10	x 1	x 0.1	x 0.01	x 0.001
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths

Decimal Point read as "and"

- 1 thousand = 10 hundreds
- 1 thousand ÷ 10 = 1 hundred
- 1 hundred ÷ 10 = 1 ten
- 1 ten ÷ 10 = 1 one
- 1 one ÷ 10 = 1 tenth
- 1 tenth ÷ 10 = 1 hundredth

When you **divide**, move to the **right** on the place value chart. The number of zeros tells you the number of places you will move. (10- 1 place, 100 - 2 places, 1000- 3 places)

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
	7	4	5			
			0	7	4	5

745 ÷ 1,000

When you **multiply**, move to the **left** on the place value chart. The number of zeros tells you the number of places you will move. (10- 1 place, 100 - 2 places, 1000- 3 places)

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			2	4	3	
		2	4	3		

2.43 x 10

**Exponents**- tell us how many times we use 10 as a factor.

1,000,000	100,000	10,000	1,000	100	10
10 × 10 × 10 × 10 × 10 × 10	10 × 10 × 10 × 10 × 10	10 × 10 × 10 × 10	10 × 10 × 10	10 × 10	10 × 1
10 <sup>6</sup>	10 <sup>5</sup>	10 <sup>4</sup>	10 <sup>3</sup>	10 <sup>2</sup>	10 <sup>1</sup>

ones	tenths	hundredths	thousandths
1 meter	$\frac{1}{10}$ meter decimeter	$\frac{1}{100}$ meter centimeter	$\frac{1}{1,000}$ meter millimeter
0	• 0	1	
0	• 0	0	1

1 meter = 100 centimeters

1 meter = 1,000 millimeters

$$\begin{array}{l} \times 10^2 \\ \curvearrowright \\ 2 \text{ meters} = 200 \text{ centimeters} \\ 2 \times 100 = 200 \\ 2 \times 10^2 = 200 \end{array}$$

$$\begin{array}{l} \div 10^2 \\ \curvearrowright \\ 260 \text{ centimeters} = 2.6 \text{ meters} \\ 260 \div 100 = 2.6 \\ 260 \div 10^2 = 2.6 \end{array}$$

$$\begin{array}{l} \times 10^3 \\ \curvearrowright \\ 2 \text{ meters} = 2,000 \text{ millimeters} \\ 2 \times 1,000 = 2,000 \\ 2 \times 10^3 = 2,000 \end{array}$$

$$\begin{array}{l} \div 10^3 \\ \curvearrowright \\ 2,600 \text{ millimeters} = 2.6 \text{ meters} \\ 2,600 \div 1,000 = 2.6 \\ 2,600 \div 10^3 = 2.6 \end{array}$$

Standard form      Fraction

$$\text{one thousandth} = 0.001 = \frac{1}{1000}$$

Expanded form with a decimal

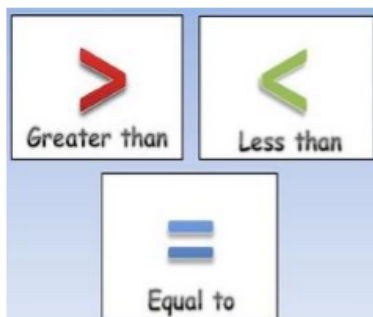
$$1 \times 0.001$$

Expanded form with a fraction

$$1 \times \frac{1}{1000}$$

Unit form

1 thousandth



When comparing numbers:

- First, look at the unit with the greatest value.
- Then, decide which number is greater, less than or equal to. (Remember the mouth of the symbol always eats the bigger number).

\*\* If the greatest value units are the same, then go to the next largest unit and compare. \*\*

Increasing- means going up

Decreasing- means going down

# Rounding Steps

- Find your place and box it tight.
- Look at the number to the right.
- 5 or greater, add one more.
- Stay the same for 0 to 4.
- Numbers in front, stay the same.
- Numbers behind, zero's their name.

Midpoint- is halfway point between two numbers. It always contains a 5.

## Adding and Subtracting decimals

$$\begin{array}{r} 0.3 \\ + 0.82 \\ \hline \end{array}$$

Be sure to line up your decimals first and units. You can always put a 0 in an empty space.

$$\begin{array}{r} 0.30 \\ + 0.82 \\ \hline 1.12 \end{array}$$

When you don't have enough units to subtract, you can **unbundle** the unit to the left.

$$\begin{array}{r} 8 \quad 15 \\ \cancel{0} \cancel{5} \\ - 0.6 \\ \hline 8.9 \end{array}$$

## Steps to Adding and Subtracting Whole Numbers and Decimals

1. Change the whole number to a decimal.

$$3 \text{ to } 3.0$$

2. Line up the place values vertically using the decimals as a guide

$$\begin{array}{r} 2.4 \\ + 3.0 \\ \hline \end{array}$$

3. Add or Subtract the numbers.

$$\begin{array}{r} 2.4 \\ + 3.0 \\ \hline 5.4 \end{array}$$

4. Check your answer by using the opposite operation.

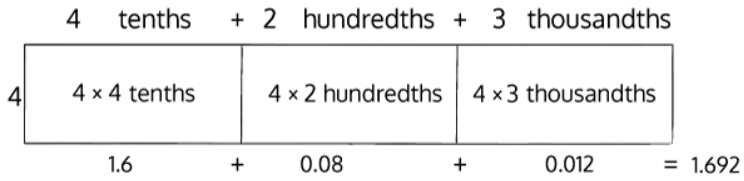
$$\begin{array}{r} 5.4 \\ - 3.0 \\ \hline 2.4 \end{array}$$

$$6 - 0.48$$

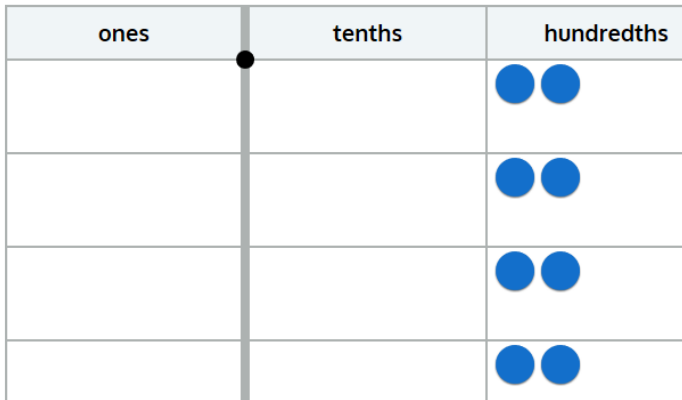
$$\begin{array}{r} 9 \\ 5 \cancel{10} \\ \cancel{6.00} \\ - 0.48 \\ \hline 5.52 \end{array}$$

# Multiplying decimals

$$4 \times 0.423 = 1.692$$

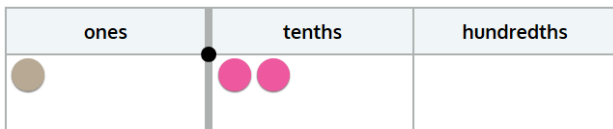
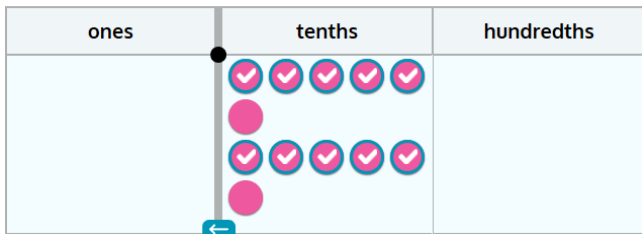
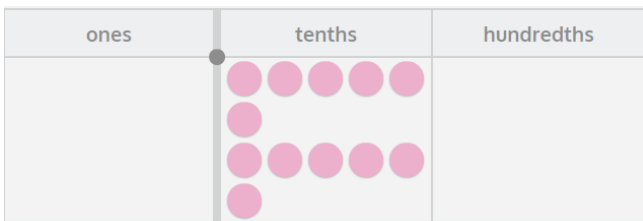


## Area Model Strategy



## Place Value Chart Strategy

$$\begin{array}{r} 0.02 \\ \times 4 \\ \hline 0.08 \end{array}$$



$$\begin{array}{r} 0.6 \\ \times 2 \\ \hline 1.2 \end{array}$$

## Another strategy when using algorithm

$14 \times 0.28$

Step 1: Change numbers to unit forms. 14 ones × 28 hundredths

Step 2: Set up standard algorithm vertically putting the longest number on top.

$$\begin{array}{r} 28 \text{ hundredths} \\ \times 14 \text{ ones} \\ \hline 112 \\ + 28 \text{ } \\ \hline 392 \end{array}$$

Step 3: Find the product.

Step 4: Put decimal back in answer based on your unit.

\* hundredths - 2 digits behind decimal point  
 \* tenths - 1 digit behind decimal point

392 hundredths = 3.92

## Dividing Decimals

Place value chart

ones	tenths	hundredths	thousandths
	●●●●●●		
ones	tenths	hundredths	thousandths
	●●●		
	●●●		
	●●●		

$$0.9 \div 3 = 0.3$$

When dividing on the place value chart, if you have any units left over in the top part, unbundle them.

Algorithm

$$\begin{array}{r} 2.24 \\ 3 \overline{) 6.72} \\ \underline{- 6 \phantom{0}} \phantom{0} \\ 0.7 \phantom{0} \\ \underline{- 6 \phantom{0}} \phantom{0} \\ .12 \\ \underline{- .12} \\ .00 \end{array}$$

$$\begin{array}{r} 4.25 \\ 4 \overline{) 17.00} \\ \underline{- 16 \phantom{0}} \phantom{0} \\ 1.0 \phantom{0} \\ \underline{- .8 \phantom{0}} \phantom{0} \\ .20 \\ \underline{- .20} \\ .00 \end{array}$$

