SOL 6.7 – Operations with Decimals

6.7 The student will solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of decimals.

Understanding the Standard:

- Different strategies can be used to estimate the result of computations and judge the reasonableness of the result. For example: What is an approximate answer for 2.19 ÷ 0.8? The answer is around 2 because 2 ÷ 1 = 2.
- Understanding the placement of the decimal point is very important when finding quotients of decimals. Examining patterns with successive decimals provides meaning, such as dividing the dividend by 6, by 0.6, by 0.06, and by 0.006.
- Solving multistep problems in the context of real-life situations enhances interconnectedness and proficiency with estimation strategies.
- Examples of practical situations solved by using estimation strategies include shopping for groceries, buying school supplies, budgeting an allowance, deciding what time to leave for school or the movies, and sharing a pizza or the prize money from a contest.

SOL 6.7 – Adding & Subtracting with Decimals

ADDING		SUBTRACTING
2.3 + 1.78 =		2.3 – 1.78 =
2.3 **+ 1.78**	**Line up decimals**	**2.3** **- 1.78**
2.3**0** + 1.78	**Add ZERO if necessary**	2.3**0** - 1.78
2.30 + 1.78 **4 08**	**Add or Subtract**	**1 12 10** **~~2.30~~** - 1.78 **0 52**
2.30 + 1.78 4.08	**Bring down Decimal point**	2.30 - 1.78 0.52

SOL 6.7 – Multiplying with Decimals

MULTIPLYING

3.6×0.08

Write the problem vertically

$$\begin{array}{r} \mathbf{3.6} \\ \times\ \mathbf{0.08} \end{array}$$

Multiply

$$\begin{array}{r} 3.6 \\ \times\ 0.08 \\ \hline \mathbf{288} \\ \mathbf{00X} \\ \mathbf{+\ 00XX} \\ \hline \mathbf{0288} \end{array}$$

Count the number of decimal places in both factors.

$$\begin{array}{rr} 3.6 & 1 \\ \times\ 0.08 & 2 \\ \hline 0.2\,8\,8 & 3 \end{array}$$

Move the decimal point to the left in the product the same number of decimal places.

SOL 6.7 – Dividing with Decimals

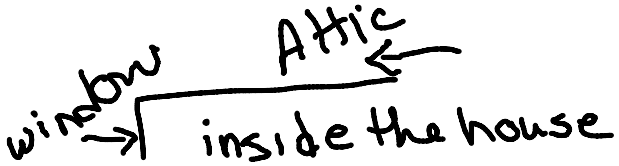
DIVIDING	$6.39 \div 0.3$
Write the problem as long division (the house)	$0.3\overline{)6.39}$
Make the divisor a whole number by moving the decimal point	$0.3\overline{)6.39}$
Move the decimal in the dividend the same number of decimal places	$03.\overline{)63.9}$
Bring the deimal point up to the quotient	21.3
Divide	-6, 03, -3, 09, -9, 0

Monster Story

To help remember how to divide with decimals.

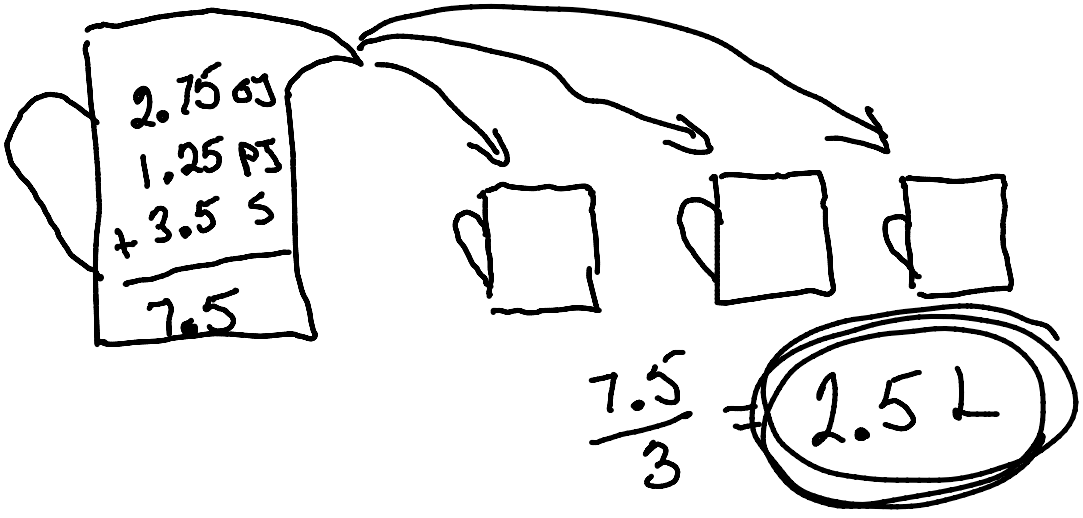
There once was a monster that roamed the woods outside of Decimal's house. His name was Point. Ever so often he would walk up to the house and peer in. If Point ever saw the boy Decimal he would certainly break in and eat him. Decimal is very scared of this monster and must hide so he is not seen.

Today Decimal is inside of the house by himself playing the Wii. All of a sudden Decimal sees the monster Point taking slow steps toward the window. Decimal is very cautious not to draw the attention of Point and **for every step the monster makes towards the window, he takes the same number of steps away from the window.** Decimal must hide or Point will surely see him when he gets to the window and peers in. **But Decimal escaped to the attic** where Point cannot see him.



Practice:

Jake made punch by combining 2.75 liters of orange juice, 1.25 liters of pineapple juice, and 3.5 liters of soda. He then poured equal amounts of all the punch into 3 different containers. How much punch did Jake pour into each container?



Released SOL questions:

1. **The regular price of a meal is $6.75. On Tuesday, the meal is on sale for $1.00 off the regular price. Sarah bought 4 of these meals on Tuesday. What is the total cost of these 4 meals before tax? _____**

$$\begin{array}{r} 5.75 \\ \times\ 4 \\ \hline \$23.00 \end{array}$$

2. **Alisha wants to buy a camera that costs $228, including tax. She has saved $4.75 each week for the past 8 weeks. Who much more money does Alisha need to purchase the camera?**

   A. $6
   B. $38
   C. $48
   D. $190

$$\begin{array}{r} 4.75 \\ \times\ \ 8 \\ \hline 38.00 \end{array} \qquad \begin{array}{r} 228 \\ -\ 38 \\ \hline 190.00 \end{array}$$

3. **Samuel bought 4 rolls of tape to seal boxes. Each roll contains 32.9 meters of tape. He uses 1.2 meters of this tape to seal each box. What is the total number of boxes Samuel can seal with these 4 rolls of tape?**

   A. 109 boxes
   B. 130 boxes
   C. 132 boxes
   D. 157 boxes

$$\begin{array}{r} 32.9 \\ \times\ \ 4 \\ \hline 131.6 \end{array} \div 1.2 =$$