

Tutorial Session Notes

Grade 6

Quarter #2 (Week 9-16)

About these notes:

- These notes are primarily for those who are acting as the tutor – either a parent or a class teacher.
- In the first year of JYMA, Maria (our JYMA tutor) and I met every week and talked about grades 5-8, and we made a list of suggested topics for the Friday tutorial session.
- In order to support those who are acting as the tutor for their child or a whole class, I am sharing these notes with those who are acting as the tutor.
- Of course, these tutorial sessions are also an opportunity for the students to ask their tutor questions.
- If you are acting as the tutor, it may be helpful to read the section of the JYMA Handbook titled “The Role of the Tutor”.

Week #9

- Ask about how they did on the puzzles from the group assignment. Go over them, if they wish to do so. Answers are:
 - **Making Change** One possible solution is 5 pennies, 13 nickels and 3 dimes.
 - **Number Wheel.** There are three possibilities for the middle:
 - 6 is in the middle, with a common sum of 18
 - 1 is in the middle, with a common sum of 14.
 - 11 is in the middle, with a common sum of 22.
- Convert to decimal:
 - 9/11
 - 7/25
 - 538/999
 - 80/111
 - 13/5,000
 - 5/24 (this is the only one that you have to use long division for)
- Practice problems:
 - $(1\frac{3}{7})$ squared (Answer is $100/49$ or 2 and $2/49$)
 - $(3)/(4\frac{2}{3})$
- Divisibility
 - Review all the rules for 2, 3, 4, 5, 9, 10
 - Is 3,302,250 divisible by 2,3,4,5,9,10?
- (If there is still time) **unit cost** :
 - 10 tangerine costs \$2.75
15 tangerines for \$4.50
Which one has the better unit cost?
 - Discuss how gasoline prices are often with fractions of a cents:
 $\$2.63^9$ /gallon What does the 9 mean?

Week #10

- Thoroughly go over the US measurement system including problems similar to the homework (Sheet #10).
- Go over the group assignment:
 - The new math trick (e.g., $7*99999$)
 - Dealing with zeroes in the denominator, such as: $\frac{3}{4}$; $\frac{3}{40}$; $\frac{3}{400}$
- Do $757 \div 18$. Give answer both as a repeating decimal, and as a mixed number.
- Divisibility questions:
 - What is 1205232 divisible by (2,3,4,5,9,10)? (Answer: 2,3,4)
 - Is 1205232 divisible by 7? (You need to divide; answer is yes!)

Week #11

- Practice dealing with zeroes in the denominator in fraction conversions
 - 1) $3/5 = 0.6$
 - 2) $3/50 = 0.06$
 - 3) $3/500 = 0.006$ Compare this last one to #1...Because the denominator is 100 times bigger, the answer is 100x smaller.
- 9's and 0's in the denominator
 - Problems 21 – 31 from Sheet #11 in the workbook
 - Be sure that they are clear about these problems.
 - This should lead them to the realization that...
 - the number of nines give how many digits are under the repeat bar
 - the zeroes tell us how many zeroes are before the repeat bar.
 - Note for the tutor: This leads in the next few weeks to being able to convert any repeating decimal into a fraction.
- Practice one divisibility question:
 - 5,490,048 What is this divisible by: 2, 3, 4, 5, 9, 10?
- If time allows, do a division problem
 - $8,761 \div 74$ give answer in three different forms:
 - Mixed number (Answer: $118 \frac{29}{74}$)
 - Repeating decimal (Answer: 118.3918)
 - Rounded to five significant digits (Answer: 118.39)

Week #12

- **Temperature Conversions**
 - Make sure they understand the Celsius Fahrenheit questions from the group work.
 - Go over the formulas (see Sheet #12, problem #77-79) and make sure they understand it as a set of instructions.
 - Give new conversion problems
 - Convert 5°C to
 - Convert 212°F to C
 - Convert 12°C to
 - Convert 80°F to C
- **Converting Repeating Decimals To Fractions.**
 - Make sure they understand the Tuesday group assignment for converting repeating decimals to fractions, give a couple of similar examples to do.
- **Measurement Conversion.**
 - Do a couple more measurement conversion problems.
- **Halves of fractions.** Here are some examples:
 - $\frac{1}{2}$ of $\frac{8}{13}$
 - $\frac{1}{2}$ of $\frac{3}{4}$
 - $\frac{1}{3}$ of $\frac{9}{10}$
 - $\frac{1}{3}$ of $\frac{7}{8}$
- **Homework Questions.** Answer other questions from the homework.
- **If you didn't do this last time...**do a division problem
 - $8,761 \div 74$ give answer in three different forms:
 - Mixed number (Answer: $118\frac{29}{74}$)
 - Repeating decimal (Answer: $118.39\overline{18}$)
 - Rounded to five significant digits (Answer: 118.39)

Week #13

- **Flashcard facts.** Test them on flashcard facts (found on sheet #9 and #6 and #2)
- **Converting Repeating Decimals to Fractions.**
 - Practice problems similar to the “hanging question” that I did in the lecture.
Here are some practice problems:
 - $0.1\overline{36}$ (answer = $\frac{3}{22}$)
 - $0.958\overline{3}$ (answer = $\frac{23}{24}$)
 - $0.439\overline{18}$ (918 repeating) - (answer = $\frac{65}{148}$)
 - Make sure they understand the Tuesday group assignment for converting repeating decimals to fractions, give a couple of similar examples to do.
- **Homework Review.** From sheet #13, make sure understand 68 - 71
- (If time allows) **Measurement Conversion.**
 - Do a couple more measurement conversion problems.

Week #14

- Go over and make sure they understand Sheet #14.
 - Especially spend a lot of time on #42. Perhaps give more problems like these.
 - Make sure they understand #40, which uses this formula: $P = 7.5 \cdot H + 9 \cdot B$
Give this extra problem:
How much would he get paid in a week if he works 40 hours in a week and sells 12 bikes?
(Answer = \$408)
- Converting fractions to decimals and repeating decimals to fractions. Practice problem:
 - $0.6\overline{452}$ (answer = $\frac{6446}{9990}$ which reduces to $\frac{3223}{4995}$)
- Other practice problems:
 - $15\frac{1}{4} - 9\frac{2}{3}$
 - $3\frac{5}{6} \times 4\frac{1}{3}$
 - $(0.005)^3$
- If extra time, give simple metric conversion problems, such as:
 - $6.3\text{m} = \underline{\hspace{1cm}} \text{cm}$
 - $34\text{m} = \underline{\hspace{1cm}} \text{km}$
 - and others...

Week #15

- Go over the Thursday group assignment questions (metric conversions and factor puzzles)
- Make sure they understand #31-39 on Sheet #15.
- Common factors and common multiples
 - This should be review from 5th grade. If not, then do a good introduction.
 - For each of the following pairs of numbers, give the GCF and LCM
 - 40 and 25
 - 18 and 12
 - 30 and 40
 - Challenge! 60 and 48

Week #16

- Find GCF and LCM for:
 - 6 and 10
 - 12 and 16
 - 8 and 15
 - 15 and 25
 - optional challenge: 24 and 40
- Prime Factorization
 - Don't use "Factor Tress". Use the method I showed in the lecture.
 - Determine the prime factorization of the following numbers
 - 75
 - 80
 - 66
 - 300
- Go over missing digit puzzles (from group assignment) if time.
- Ask if any questions on sheet 16