

Tutorial Session Notes

Grade 8

Quarter #1 (Week 1-8)

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 #1

- Introduce each other.
- Today is the first day – so make it fun! Perhaps, play a game.
- Ask about what topics they remember learning last year, and perhaps so a few simple problems related to this.
- Introduce the *Egyptian Number System*,
- Make up several problems similar to *Number Bases – Practice Sheet #1* (workbook, p3), including expanded notation and scientific notation.
- Practice adding and subtracting octal numbers – problems similar to problem #3 on *Group Sheet #2* (p4)

Week #2

- Start with 3 octal arithmetic problems (+, -, x)
- Together work on group sheet 3.

Week #3

- Go over hexadecimal table row 2, 3, and 8.
- Do sheet #7 problems 7b, 7d, 8b, 15, 16. If time, go over the other problems from #5-17.

Week #4

- Test prep!
- Go over #21-33 in practice sheet #5
- Go over problems from practice sheet #6 and #7.
- If time, #16 on practice sheet #6.

Week #5

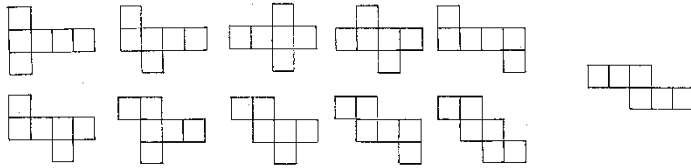
- Ask if they know what the mystery computer program is. Do this now if they haven't already.
- Square root algorithm practice
- $\sqrt{86436}$ (= 294)
- $\sqrt{680625}$ (= 825)
- Solving a Pythagorean triangle.
 - They MUST picture the squares off the side of the triangles
 - Practice #1: shortest sides are 18 and 24. Find the longest side.
 - Area of the smallest square = 324
 - Medium square = 576
 - Area largest square = 900, therefore length is 30
 - Practice #2: Longest side is 89, shortest 39, find the medium side. (Answer = 80).

Week #6

- Ask, what is a Pythagorean Triple? - A right triangle where all 3 sides are whole numbers.
- on page 18, Group sheet #2, go over: #3d, #3e, #3f, #4c.
 - #3d: is a right triangle, because $28^2 + 96^2 = 100^2$. Which, when divided by 4, gives 7, 24, 25, which is a Pythagorean triple.
 - #3e: sides 7,8,11. Does this triangle satisfy the pythagorean theorem (aka is it a right triangle)? If not, is this triangle acute or obtuse?
 - ask: does $11^2 = 7^2 + 8^2$? This becomes $121 = 49 + 64$, which is $121 = 113$ No! $121 > 113$, therefore the square created by the hypotenuse is greater than the squares created by the other two sides added together. This implies the hypotenuse is too large for a right triangle, and the angle across it is larger than 90, meaning the triangle is obtuse.

Week #7

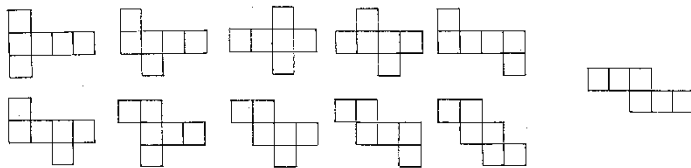
- Ask if questions on **Pythagorean Theorem – Practice Sheet #2 or Group Sheet #3** (p19-20)
- Go over Group Assignment (See Lecture #2)
- If time, ask if they figured out how many nets there are to a cube.
Here are the 11 possible nets (but don't give it to them!):



And then ask: how many nets are there to an octahedron? (Answer is on p114 in MS Source Book)

Week #8

- Go over questions from Practice sheet #3 - Make sure they understand everything!
- If they need a challenge, go over problem #3.
- If you still haven't done this...ask about how many nets there are to a cube.
 - Here are the 11 possible nets (but don't give it to them!):



- And then ask: how many nets are there to an octahedron (also 11, see below)?

