UTS in discrete math made by Michael Marchenko for April and May of 2018

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s is your student number. k = s mod 10000. T = s mod 100. m = s mod 35. a = s mod 25.

L = s mod 10. . e = s mod 8. m7 = s mod 7. m6 = s mod 6. m5 = s mod 5. m4 = s mod 4.

m3 = s mod 3. m2 = s mod 2. u = s + 10000.

1. Solve set theory problem.

1.1. How many subsets are there in a set of m elements?

1.2. Find

2. Do series problem.

2.1. Prove .

2.2. Prove the Triangular Number expression .

2.3. Prove the expression for

3. Solve relations.

3.1. Binary relation R on the set {1 to e+2} is defined so that *a*R*b* holds if and only if

 *a* divides *b*, with remainder. Find the matrix and draw the graph.

 Is it reflexive, symmetric, anti-symmetric, transitive, composite?

3.2. Binary relation R on the set {1 to e+2} is defined so that *a*R*b* holds if and only if

 *a* divides *b*, with NO remainder. Find the matrix and draw the graph.

 Is it reflexive, symmetric, anti-symmetric, transitive, composite?

4. Do number theory.

4.1. Find Highest Common Divisor and Lowest Common Multiple of e+4 and L+4.

4.2. Convert T to e+2 and L+2 counting systems.

4.3. Calculate the largest prime number you can using your own computer code.

4.4. Give prime factorization of s.

5. Solve combinatorics.

5.1. Calculate C(9,e) and P(7,e). Give all the options for C(e+3,e).

5.2. In how many ways can you answer an exam with m+1 questions

 each of which has e+1 options for the answer?

6. Do probability.

6.1. Draw the histogram of tossing L+2 fair coins. Draw the histogram of the first e+3 digits of π.

6.2. Draw the histogram of adding random between e+2 times.

6.3. Give the histogram of Benford of the first digit of e+2 the most populated countries.

Predictions:

7. Make predictions.

7.1. Predict results of soccer world cup and Indonesian elections of 2018.

http://www.fifa.com/worldcup/

https://en.wikipedia.org/wiki/Indonesian\_local\_elections,\_2018

7.2. Try to apply for all grants, scholarships, fellowships, etc. in embassies of USA, Canada, Europe, Australia, Japan, etc.

8. Improve your project.