Individual task in discrete math 10 September 2018

Edited at 4am 10 September 2018.

s is your student number.

Write your student number: s = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

k = s mod 10000. T = s mod 100. m = s mod 35. a = s mod 25.

L = s mod 10. $d\_{2}=\frac{T-L}{10}$. m9 = s mod 9. 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.

Proofs:

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/3proofs.ppt

1. Prove $\sum\_{i=0}^{T}b^{i}=\frac{1-b^{T+1}}{1-b}$.

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/4sequences.ppt

2. Prove the Triangular Number expression $\sum\_{c=0}^{j}c= \frac{j(j+1)}{2}$.

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/4sequences.ppt

3. Prove the expression for $\sum\_{c=1}^{j}c^{L}$

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/p2integration2vs2summation.docx

Relations:

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/5relations.ppt

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/9relations.ppt

4. 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?

5. 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?

Number theory:

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/6primes.ppt

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

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/euclidean4algorithm.txt

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

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/number2convert.txt

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

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/primes2find.txt

9. Give prime factorization of s.

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/prime4factorization4of4numbers.txt

Combinatorics:

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/7combinatorics.ppt

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

http://discrete4math.weebly.com/uploads/2/5/3/9/25393482/calculator4combinations.txt

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

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

Probability in discrete math:

https://discrete4math.weebly.com/uploads/2/5/3/9/25393482/8probability.ppt

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

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

Use of your math knowledge and skills:

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

15. Predict results of Indonesian elections.

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

**Project:**

16. Improve your project.