I. **Optional Assignment**

a. Maths Poems: Write a poem using maths related contents

A maximum of **1 hour** of community service will be awarded depending on the quality of the poem.

Here are some web links as resources.

https://zhuanlan.zhihu.com/p/358655658
https://www.kpcswa.org.cn/web/press/members/commentary/032931602019.html
https://mathstory.com/math-poems-page/
https://www.poetrysoup.com/poems/best/math

b. **Research on one of the following topics, make a presentation by either a poster or a short video of 5 to 10 minutes (if you do not want to choose any of the following topics, you can determine one topic you are interested in):**

1. Research on Euler number 'e'
2. Research on 'pi'
3. Research on pascal's triangle
4. Explore some important limits, e.g. sinx/x, (cosx-1)/x
5. Exploring the history of calculus and the contributions of

   Isaac Newton and Gottfried Wilhelm Leibniz
6. Exploring the applications of the Binomial Theorem
7. Exploring the Fibonacci Sequence and its Applications in Nature
8. Research on proof methods, e.g. direct proof, contradiction, contrapositive
9. Research on famous mathematicians and their contributions,

e.g. Carl Friedrich Gauss, Pierre de Fermat, Leonhard Euler

10. Research on famous unsolved mathematics problems

11. Real life applications of probability distributions

12. Simple data analysis using real-life data

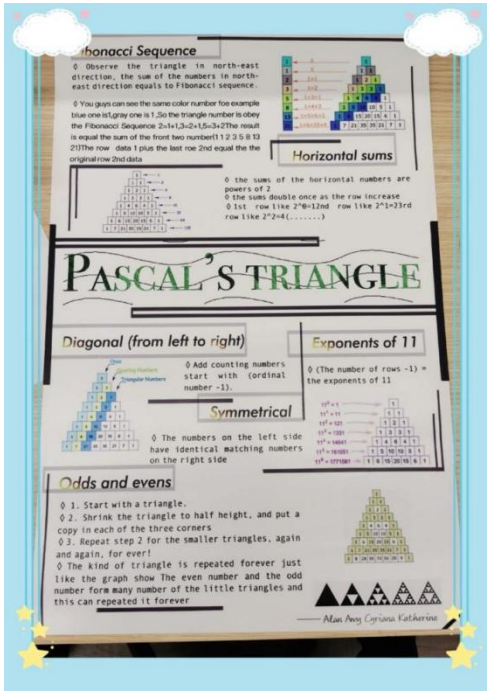
13. Application of probability in real life such as birthday problem, the Monty Hall problem, lottery.

14. Application of trigonometry and probability in sports, for example in football, probability for scoring against position on the field.

For a poster, a maximum of **2 hours** of community service will be awarded; for a video presentation, a maximum of **3 hours** will be awarded.

Additional notice:

Posters could be like :



Video: just like what you did in your morning registration time, pls record

your presentation on your understanding of some maths topics, you can use slides or other tools to help you present.