_____1) When the radius of a circle is increased by 80%, what is the percent increase in the circle's area?

_____2) Convert 2022_{10} to base 8.

_____3) How many ways are there to distribute 12 identical objects among 3 people?

_____4) Calculate $1 + 4 + 9 + 16 + \ldots + 48^2$.

_____5) Find the determinant. $\begin{bmatrix} 9 & 8 & 7 \\ 0 & 2 & 0 \\ 7 & 9 & 2 \end{bmatrix}$

_____6) My dinner costs \$25. Then, 6.5% sales tax is added to my bill and rounded to the nearest penny. I add 20% tip, round to the nearest penny, and, finally, round up to the nearest dollar. What is my total?

_____7) A churro recipe calls for $6\frac{1}{4}$ cups of sour cream per serving, which feeds 5 people. Jiayi is hosting 13 people for a get together. How many cups of sour cream will he need?

_____8) Freed was born on January 23, 1959. What day of the week was that date? Hint : Freed is happy that day was not the 13th.

_____9) What is the greatest number of Chicken McNuggets Lindsay can not buy with boxes of 5 and 7 McNuggets?

_____10) What is the remainder when 6210815228073666891521l is divided by 9?

_____11) One regular polygon has interior angles measuring $170°$ and another has interior angles measuring $175°$. What is the positive difference in the number of sides of the two polygons?

_____12) What is the area enclosed by the graph of $x^2 + y^2 - 10x + 12y - 83 = 0$?

_____13) What is the sum of the cubes of the first ten Natural Numbers?

_____14) Simplify the following fraction to remove the imaginary parts in the denominator : $\frac{3 + 2i}{(3 + i)(2 - i)}$.

_____15) Factor completely. Then, give the sum of the coefficient of the xy term and the constant term. $x^3 + 216y^3 - x - 6y$.

_____16) The four digit number $179u$ (where u is the units digit) is divisible by 8. What is the value of u?

_____17) Let a = the sum of the two smallest 3-digit prime numbers and b = the sum of the two largest 3-digit prime numbers. Find a + b.

_____18) Find the area of the regular dodecagon with side length 6.

_____19) Find the number of distinguishable permutations of the word THONOTOSASSA.

_____20) Simplify. $(10 + i)(3240 - 324i)$ where $i = \sqrt{-1}$.

_____21) Write $16^7 \times 5^{24}$ in Scientific Notation.

_____22) If Row 0 of Pascal's Triangle is 1, what is the sum of the entries of Row 10.

_____23) Find the units digit of $3427^{123456789012345678 90}$

_____24) Find the area enclosed by the graph of $9x^2 + 4y^2 + 54x - 16y + 61 = 0$.

_____25) Simplify $(1 - i)^{20}$ where $i = \sqrt{-1}$.