

COT 3100 Quiz #2: Arith/Geo Series, Algebra (10/12/2022)

Last Name: _____ **First Name:** _____

Circle Recitation: 8:30 am 10:30 am 11:30 am 12:30 pm 3:30 pm 4:30 pm 7:30 pm

1) (5 pts) The 15th term of an arithmetic sequence is $2n+4$, and the 20th term of the same arithmetic sequence is $17n-16$. In terms of n , what is the 99th term of the sequence?

2) (10 pts) Let a_1, a_2, a_3, \dots be an infinite geometric sequence. If $\sum_{i=1}^{\infty} a_{2i-1} = 8$, and $a_1 = 4$. (a) What are all possible values of a_2 ? (b) If it's known that $a_2 > 0$, the sum of the whole sequence can be determined. What is it? Clearly label both of your answers and put a box around them.

3) (5 pts) Jenny and John are painting a house that has 8 equal sized walls. If it takes Jenny 4 hours to paint a wall and it takes John 5 hours to paint a wall, how long will it take for the two of them working together to paint all 8 walls of the house? (Please express your answer as A hours, B minutes, C seconds, where A is in between 0 and 23, and B and C is in between 0 and 59.)

4) (5 pts) In between 1 pm and 2 pm, there is a single moment in time where the minute hand will be exactly opposite the hour hand. Let this moment be t minutes AFTER 1 pm. What is the value of t ? Please express your answer as a fraction in lowest terms, $\frac{a}{b}$.