Name: _____ Date: _____

**Arithmetic Sequences/Series & Interest Unit Review**

1) What are the following in terms of arithmetic sequences / series:

$n$= $t_n$ =

$t_1$ = $d$=

$S_n$ =

2) For the following arithmetic sequence, find the $58^{th}$ term: *120, 114, 108, …*

3) Find the first term of an arithmetic sequence with $t_{11} = 100$ and $d = 8$.

4) If the first term of an arithmetic sequence is -25, and the last term is 20, with a common difference of 3, find the number of terms.

5) Molly starts with 21 cards and adds 18 baseball cards each month to her collection. How many cards will she have in 3 years? **Think carefully about what your 'n' value will be.*

6) Jon is 14 and has a birthday party. Every 3 years after that, up to and including his $50^{th}$ birthday, he has another party. How many parties has Jon had in total?

7) Find the sum of the arithmetic series: *-10 + -1 + 8 + ….. + 80*

8) Find the sum of an arithmetic series that starts at *37*, has a common difference of *-6*, and has *27* terms.

9) If an arithmetic series has $S_7 = 175$, and $t_7 = 40$, find $t_1$.

10) If an arithmetic series has a first term of *3*, and $S_{14} = 406$, find *d*.

11) Find $\sum_{n=2}^{5} 4n - 5$

12) If you started with $17 and then were given $19 after the first minute, then $21 after the next minute, and this pattern continued, how much would you have after 30 minutes?

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13) Calculate the simple interest when $8500 is invested at 4.6% for 7 years.

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14) Calculate the number of years that $2500 is invested at 6% in order to make $750 in simple interest.

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15) $5000 is invested at 3.5% for 4 years simple interest. After 4 years, all of that money is taken and invested at 5% for 6 years simple interest. How much in total will you have after this?

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16) $3000 is invested for 4 years at compound interest of 7%. How much total money will you have after 4 years?

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17) Micah ends up with $21 522.79 after 7 years of compound interest at 3%. How much did he originally invest?

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18a) Joanie wins $2 000 000 in a lottery. She decides to invest it at 5.5% compound interest for 5 years. How much will she have in total at that point?

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b) How much more interest will she make with compound interest compared to if she invested with the same terms at simple interest?

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