

Problem Set 4.3

1) This summer, Alexa has exactly 6 weeks free to work. Both of Alexa's parents have offered her a job. Parent 1 offers her 1 penny today, 2 pennies tomorrow, 4 pennies the next day, growing **geometrically** for 6 weeks. Parent 2 offers her \$1,000 the first day, \$1,100 the second day, \$1,200, growing **arithmetically** for 6 weeks. Assume she work 6 weeks (5 days per week) for a total of 30 days. Calculate the total amount she would earn from Parent 2.

2) If $a_n = 2 + 3(n - 1)$, find $\sum_{i=1}^{90} a_i$

3) If $\begin{cases} p_1 = -17 \\ p_n = p_{n-1} + 9 \end{cases}$ Find $\sum_{n=1}^{1000} p_n$

4) If c_n is an arithmetic sequence and $c_2 = 106$, $c_3 = 89$, $c_4 = 72$, find $\sum_{i=1}^{25} c_i$

5) Ms. Kuchler wants you to help her build a shed at Porter Gaud. She will pay you \$10 for the first week and add an additional \$10.50 each week thereafter. The project will take 5 weeks. How much money will you earn, in total, if you work for the 5 weeks?

6) You have 55 blocks. You want to stack up all the blocks so that each row has one less block than the row below. You want to end up with just 1 block on the top. How many blocks should you put in the bottom row?

7) In an arithmetic sequence $r_3 = 207$ and $r_8 = 192$.

a) Find the explicit formula for the arithmetic sequence.

b) Evaluate r_{73} .

c) Evaluate S_{85} for the arithmetic series.

8) Evaluate the series.

a) $\sum_{i=1}^{42} -i + 152$

b) $\sum_{n=1}^{200} n$

c) $\sum_{n=1}^{65} 2n + 7$

d) $\sum_{n=1}^4 3n^2 - 5$

e) $\sum_{n=1}^{25} 3n + 7$

f) $\sum_{n=5}^{25} 3n + 7$