1. Compute

1. $\sum_{i=-10}^{n}(\frac{1}{2})^i + \sum_{i=200}^{n^2}(3)^i$

$$
\begin{aligned}
\sum_{i=-10}^{n}(\frac{1}{2})^i + \sum_{i=200}^{n^2}(3)^i &= \sum_{i=-10}^{-1}(\frac{1}{2})^i + \sum_{i=0}^{n}(\frac{1}{2})^i + \sum_{i=0}^{n^2}(3^i) - \sum_{i=0}^{199}(3^i) \\
&= \sum_{i=-10}^{0}(\frac{1}{2})^i - \sum_{i=0}^{0}(\frac{1}{2})^i + \sum_{i=0}^{n^2}(3^i) - \sum_{i=0}^{199}(3^i) \\
&= -\sum_{i=0}^{10}(\frac{1}{2})^i - 1 + \frac{3^{n^2+1} - 1}{3-1} - \frac{3^{200} - 1}{3-1} \\
&= -\frac{(\frac{1}{2})^{11} - 1}{\frac{1}{2} - 1} - 1 + \frac{3^{n^2+1} - 1}{3-1} - \frac{3^{200} - 1}{3-1}
\end{aligned}
$$

2. $7^{log_2 log_2 4} + log_3 log_2^2 8$