13. What infinite power series is equal to \( f(x) = \sin(x^2) \) about \( a = 0 \)? (A different way to phrase the same problem is, “Find the Taylor series for \( f(x) = \sin(x^2) \) about \( a = 0 \).”)

\[
\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \ldots
\]

\[
\sin(x^2) = x^2 - \frac{x^6}{3!} + \frac{x^{10}}{5!} - \frac{x^{14}}{7!} + \ldots
\]

14. Find a closed formula for \( \sum_{k=3}^{75} 3^k = 3^3 + 3^4 + 3^5 + 3^6 + \ldots + 3^{75} \). (Your answer should not have any summation signs and should not have any dots.)

\[
\text{Sum} = \frac{3^3 - 3^{76}}{1 - 3}
\]