0. (1 pt) Follow the instructions on this exam and any additional instructions given during the exam.

(6 pt) 1. Determine if \( \sum_{n=2}^{\infty} \frac{3^n - 2}{9^n} \) converges or diverges. If it converges, to what value does it converge?
(6 pt) 2. Evaluate the integral \( \int \sin(7x) \cos(3x) \, dx \).
(6 pt) 3. Evaluate the integral \( \int \frac{2x + 4}{(x^2 + 1)x^2} \, dx \).
4. Determine if the integral converges or diverges. If it converges, to what value does it converge?

\[ \int_{1}^{\infty} \frac{1}{x^2 \sqrt{1 + x^2}} \, dx \]