1. (5.3 #3) Determine the percentage rate of change of the function \( f(x) = e^{3x} \) at \( x = 10 \) and \( x = 20 \).

2. (5.4 #7) When a grand jury indicted the mayor of a certain town for accepting bribes, the newspaper, radio, and television immediately began to publicize the news. Within an hour, one-quarter of the citizens heard about the indictment. Estimate when three-quarters of the town heard the news.
3. (6.1 #13) Determine

\[ \int \left( \frac{2}{x} + \frac{x}{2} \right) \, dx. \]

4. (6.1 #45) Find all functions \( f(x) \) so that \( f'(x) = \sqrt{x} + 1 \) and \( f'(4) = 0 \).