\documentclass{article} \usepackage{amsmath} \usepackage{amsfonts} \begin{document} \section*{Math Expressions for RAG System Testing} \textbf{1. Solve the following quadratic equation:} \[ax^2 + bx + c = 0 \] Where \(a\), \(b\), and \(c\) are constants. \textbf{2. Find the derivative of the following function:} \[f(x) = 3x^4 - 5x^3 + 2x - 7 \] \textbf{3. Evaluate the integral:} \[I = \int_0^1 (x^2 + 2x) \, dx \] \textbf{4. Solve the following system of equations:} \[\begin{aligned} 3x + 2y &= 5 \\ 4x - y &= 6 \end{aligned} \] \textbf{5. Find the determinant of the matrix:} \[A = \begin{pmatrix} 1 & 2 & 3 \\ 0 & 1 & 4 \\ 5 & 6 & 0 \end{pmatrix} \] \textbf{6. Simplify the following expression:} \[\frac{5x^2 + 3x - 8}{x^2 + 2x - 3} \] \textbf{7. Solve for \(x\) in the following logarithmic equation:} \[\log_2(x + 3) = 4 \] \textbf{8. Evaluate the limit:} \[\lim_{x \to 0} \frac{\sin(x)}{x} \] \textbf{9. Solve the following exponential equation:} \[2^x = 16 \] \textbf{10. Perform the following matrix multiplication:} \[A = \begin{pmatrix} 1 & 3 \\ 2 & 4 \end{pmatrix} \quad B = \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} \quad AB = ? \] \end{document}