Math Exercises

Course Name

1 Algebra

Exercise 1. *Solve for x:* $2x^2 - 5x + 3 = 0$

Exercise 2. *Simplify:* $\frac{x^2-4}{x^2+4x+4}$

2 Calculus

Exercise 3. *Find the derivative of* $f(x) = \sin(x^2) \cdot e^x$

Exercise 4. *Evaluate:* $\int_0^{\pi} \sin^2(x)dx$

3 Linear Algebra

Exercise 5. *Find the eigenvalues of the matrix:*

$$A = \begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$$

Exercise 6. *Determine if the following vectors are linearly independent:*

$$\mathbf{v}_1 = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, \quad \mathbf{v}_2 = \begin{pmatrix} 2 \\ 4 \\ 5 \end{pmatrix}$$