• consistent system of equations, inconsistent, p 4
• coefficient matrix, p 5
• augmented matrix, p 5
• $m \times n$ matrix, p 5
• rows and columns of a matrix
• row operations, p 7
• echelon form, p 14
• reduced echelon form, p 14
• row reduced, p 15
• pivot position, p 16
• pivot column, p 16
• pivot (value), p 17
• basic or dependent variables, p 20
• free or independent variables, p 20
• general solution, p 21
• parametric description or parametric form of solution set, p 22
• vector, p 28, 31
• scalar
• linear combination, p 32
• vector equation, p 34
• subset spanned (or generated) by a set of vectors, p 35
• product of a matrix times a vector, p 41
• matrix equation, p 42
• homogeneous and nonhomogeneous system of equations, p 50
• nontrivial solution (of a homogeneous system of equations), p 50
• parametric vector form of the solution, p 52
• line (parametric and implicit), p 53
• linearly independent and dependent set of vectors, p 65
• domain, p 73
• codomain, p 74
• linear transformation, p 77
• contraction and dilation, p 77
• shear, p 76
• matrix of a linear transformation, p 83
• rotation transformation, p 84
• reflection in line, origin, p 85
• onto, p 87
• one-to-one, p 87
• sum and scalar multiples of matrices, p 107
• diagonal matrix, p 107
• matrix multiplication, p 110
• identity matrix, p 112
• transpose, p 114
• scalar product, inner product, dot product of vectors, p 117
• invertible matrix, p 119
• inverse of a matrix, p 119
• singular and nonsingular matrix, p 119
• determinant of $2 \times 2$ matrix, p 119
• upper triangular matrix, p 132
• lower triangular matrix, p 132