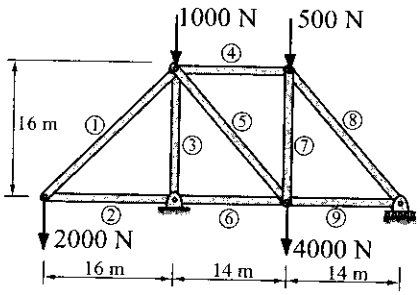
11. A truss is a structure made of members jointed at their ends. For the truss shown in the figure, the forces in the nine members are determined by solving the following system of nine equations.



$$\cos(45°)F_1 + F_2 = 0$$
$$F_4 + \cos(48.81°)F_5 - \cos(45°)F_1 = 0$$
$$-\sin(48.81°)F_5 - F_3 - \sin(45°)F_1 = 1000$$
$$\cos(48.81°)F_8 - F_4 = 0,$$
$$-\sin(48.81°)F_8 - F_7 = 500$$
$$F_9 - \cos(48.81°)F_5 - F_6 = 0, \quad F_7 + \sin(48.81°)F_5 = 4000$$
$$\sin(48.81°)F_8 = -1107.14, \quad -\cos(48.81°)F_8 - F_9 = 0$$

Write the equations in a matrix form and use MATLAB to determine the forces in the members. A positive force means tensile force and a negative force means compressive force. Display the results in a table.

12. The graph of the function $f(x) = ax^4 + bx^3 + cx^2 + dx + e$ passes through the points (–3, 6.8), (–1.5, 15.2), (0.5, 14.5), (2, -21.2), and (5, 10). Determine the constants a, b, c, d, and e. (Write a system of five equations with five unknowns and use MATLAB to solve the equations.)

13. During a golf match, a certain number of points are awarded for each eagle and a different number for each birdie. No points are awarded for par, and a certain number of points are deducted for each bogey and a different number deducted for each double bogey (or worse). The newspaper report of an important match neglected to mention what these point values were, but did provide the following table of the results:

Golfer	Eagles	Birdies	Pars	Bogeys	Doubles	Points
Fred	1	5	10	2	0	18
Wilma	2	3	11	1	1	15
Barney	0	3	10	3	2	0
Betty	1	4	10	3	1	12

From the information in the table write four equations in terms of four unknowns. Solve the equations for the unknown points awarded for eagles and birdies and deducted for bogeys and double bogeys.