

projectSOLUTIONS_1b

MTE 204 - Project 1a Submission Document

Group #16

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///*****

/// SOLUTIONS TO Problem 1b - 2016

///*****

/// Calculated Forces (N)

FA = 2630.000000, FB = 600.000000

FC = 380.000000, FD = 3550.000000

/// NODAL POSITIONS (mm)

U1x = -0.00024, U1y = 0.00000

U2x = 0.00000, U2y = 0.00000

U3x = -0.00252, U3y = 0.00359

U4x = -0.00131, U4y = 0.00000

U5x = 0.00000, U5y = 0.00000

U6x = -0.00060, U6y = -0.00035

U7x = -0.01435, U7y = 0.00829

U8x = -0.00229, U8y = -0.00031

U9x = -0.00436, U9y = 0.00176

U10x = -0.01895, U10y = 0.00967

U11x = -0.01204, U11y = 0.00161

/// NODAL FORCES (Newtons)

F1x = 0.00000, F1y = 208.68040

F2x = 1379.83211, F2y = -977.65153

F3x = -173.20508, F3y = -100.00000

F4x = 0.00000, F4y = -259.46531

F5x = 1583.54142, F5y = -1604.17026

F6x = 0.00000, F6y = 0.00000

F7x = -0.00000, F7y = 0.00000

F8x = -70.71068, F8y = 70.71068

F9x = 0.00000, F9y = 0.00000

F10x = -2719.45777, F10y = 2281.89601

F11x = 0.00000, F11y = 380.00000

/// Element Stresses (MPa)

/// ID, Node 1, Node 2, STRESS[MPa]

1, 1, 2, 0.048194 [Tension]

2, 1, 6, 0.096386 [Compression]

3, 2, 6, 0.000056 [Compression]

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4, 2, 3, 0.503967 [Compression]
5, 2, 7, 0.000431 [Tension]
6, 6, 10, 0.096370 [Compression]
7, 7, 10, 0.698998 [Tension]
8, 10, 11, 0.690415 [Tension]
9, 3, 8, 0.652606 [Compression]
10, 8, 4, 0.044244 [Tension]
11, 3, 4, 0.241031 [Tension]
12, 11, 9, 0.741158 [Tension]
13, 11, 8, 0.640829 [Compression]
14, 4, 9, 0.000429 [Tension]
15, 4, 5, 0.262938 [Tension]
16, 5, 9, 0.740941 [Tension]
17, 2, 10, 0.390764 [Tension]
18, 3, 7, 0.698797 [Tension]
19, 4, 11, 0.065101 [Tension]