#### **Tapered and Swept Beam**

A trapezoidal clamped beam with a unit load at the tip was analyzed, Figure 1. Elements used to model the beam are distorted and are under membrane forces. The analysis was done using a single element and refined to 16x16 where it converges to the reference solution of 23.91 by Simo et al.16 (Table 1).

E = 1.0

n = 0.33

h = 1.0



Table 1 (a) Normalized Results to the Tapered and Swept Beam

Figure 1 Tapered and Swept Beam Model

|  |  |  |  |
| --- | --- | --- | --- |
| Mesh | Simo, et al.16 | Ma | XSHELL-4-ANS |
| 1x1 | 0.700 | 0.930 | 0.738 |
| 2x2 | 0.883 | 0.985 | 0.895 |
| 4x4 | 0.963 | 0.998 | 0.978 |
| 6x6  8x8 | 0.991 | - | 1.006  1.019 |
| 16x16 | 0.999 | - | 1.043 |