```
L = 2 E - 1;
elasticModule = 2.07 E + 11;
a = .1;
h = .5;
Izz = (a h^3) / 12.;
```

$$K = \frac{\text{elasticModule}\ \text{Izz}}{L^3} \begin{pmatrix} 12 & 0 & 6L & 0 & -12 & 0 & 6L & 0 \\ 0 & 12 & 0 & 6L & 0 & -12 & 0 & 6L \\ 6L & 0 & 4L^2 & 0 & -6L & 0 & 2L^2 & 0 \\ 0 & 6L & 0 & 4L^2 & 0 & -6L & 0 & 2L^2 \\ -12 & 0 & -6L & 0 & 12 & 0 & -6L & 0 \\ 0 & -12 & 0 & -6L & 0 & 12 & 0 & -6L \\ 6L & 0 & 2L^2 & 0 & -6L & 0 & L^2 & 0 \\ 0 & 6L & 0 & 2L^2 & 0 & -6L & 0 & L^2 \end{pmatrix};$$

```
FullSimplify[MatrixForm[K]]
```

$$\begin{pmatrix} 0.00238001 & 0. & 0.00527954 & 0. & -0.00238001 & 0. & 0.00527954 & 0. \\ 0. & 0.00238001 & 0. & 0.00527954 & 0. & -0.00238001 & 0. & 0.00527954 \\ 0.00527954 & 0. & 0.0156154 & 0. & -0.00527954 & 0. & 0.00780768 & 0. \\ 0. & 0.00527954 & 0. & 0.0156154 & 0. & -0.00527954 & 0. & 0.00780768 \\ -0.00238001 & 0. & -0.00527954 & 0. & 0.00238001 & 0. & -0.00527954 & 0. \\ 0. & -0.00238001 & 0. & -0.00527954 & 0. & 0.00238001 & 0. & -0.00527954 \\ 0.00527954 & 0. & 0.00780768 & 0. & -0.00527954 & 0. & 0.00390384 & 0. \\ 0. & 0.00527954 & 0. & 0.00780768 & 0. & -0.00527954 & 0. & 0.00390384 \end{pmatrix}$$