

```

m1 = {
{10.8, 0.4, 0, 0},
{0.4, 12.8, 0, 0},
{0, 0, 0, 0},
{0, 0, 0, 0}
};
m2 = {
{0, 0, 0, 0},
{0, 12.5, .25, 0},
{0, .25, 5.4, 0},
{0, 0, 0, 0}
};
m3 = {
{0, 0, 0, 0},
{0, 41.6, 0, −.4},
{0, 0, 0, 0},
{0, −.4, 0, 5.4}
};
MM = m1 + m2 + m3;

```

```

k1 = {
{(3)(10^(4)), (−3)(10^(4)), 0, 0},
{(−3)(10^(4)), (3)(10^(4)), 0, 0},
{0, 0, 0, 0},
{0, 0, 0, 0}
};

```

```

k2 = {
{0, 0, 0, 0},
{0, (5)(10^(4)), (−5)(10^(4)), 0},
{0, (−5)(10^(4)), (5)(10^(4)), 0},
{0, 0, 0, 0}
};

```

```

k3 = {
{0, 0, 0, 0},

```

$\{0, (40)(10^4), 0, (20)(10^4)\},$

$\{0, 0, 0, 0\},$

$\{0, (20)(10^4), 0, (10)(10^4)\}$

$\};$

$KK = k1 + k2 + k3;$

$Eigensystem[\{N[KK], N[MM]\}]$

$\{\{25452.3, 9751.13, 3089.21, 0.\}, \{\{-0.0285831, 0.174202, -0.112286, 0.977869\}, \{0.0222436, -0.0494158, 0.975587, 0.212824\}, \{0.9$