```
(%i1)  load(vector);
```

(%o1) $/usr/share/maxima/5.34.1/share/vector/vector.mac$

```
(%i2)  load(eigen);
```

(%o2) $/usr/share/maxima/5.34.1/share/matrix/eigen.mac$

```
(%i3)  X: entermatrix(4,3);
```

$Row1Column1 : cos(0); Row1Column2 : (1/2)*cos(atan(2)*1); Row1Column3 : (1/4)*cos(atan(2)*2); Row2Column1 : sin(0); Row2Column2 : (1/2)*sin(atan(2)*1); Row2Column3 : (1/4)*sin(atan(2)*2); Row3Column1 : cos(0); Row3Column2 : (1/4)*cos(atan(4)*1); Row3Column3 : (1/16)*cos(atan(4)*2); Row4Column1 : sin(0); Row4Column2 : (1/4)*sin(atan(4)*1); Row4Column3 : (1/16)*sin(atan(4)*2); Matrixentered.$

(%o3) $$\begin{pmatrix} 1 & \frac{1}{2\sqrt{5}} & \frac{\cos(2\,\mathrm{atan}(2))}{4} \\ 0 & \frac{1}{\sqrt{5}} & \frac{\sin(2\,\mathrm{atan}(2))}{4} \\ 1 & \frac{1}{4\sqrt{17}} & \frac{\cos(2\,\mathrm{atan}(4))}{16} \\ 0 & \frac{1}{\sqrt{17}} & \frac{\sin(2\,\mathrm{atan}(4))}{16} \end{pmatrix}$$

```
(%i4)  numer: true;
```

(%o4) $true$

```
(%i5)  XTXi: expand(invert(transpose(X).X));
```

(%o5) $$\begin{pmatrix} 1.931412022875994 & -3.496861350762219 & 9.109922044736158 \\ -3.496861350762219 & 10.19446145105472 & -19.96636863903019 \\ 9.109922044736158 & -19.96636863903019 & 61.14925304291572 \end{pmatrix}$$

```
(%i6)  XT: expand(transpose(X));
```

(%o6) $$\begin{pmatrix} 1 & 0 & 1 & 0 \\ 0.2236067977499789 & 0.4472135954999579 & 0.06063390625908324 & 0.2425356250363329 \\ -0.1499999999999999 & 0.2 & -0.05514705882352942 & 0.02941176470588234 \end{pmatrix}$$

```
(%i7)  output: [0, 1, 0, 1];
```

(%o7) $[0, 1, 0, 1]$

```
(%i8)  A: expand(XTXi.XT.output);
```

(%o8) $$\begin{pmatrix} -0.3220340983957799 \\ 2.451101975404155 \\ 0.256570845310522 \end{pmatrix}$$