```
(%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);
```

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

(%o3)
$$\begin{pmatrix} 1 & \frac{1}{2\,\frac{3}{2}} & 0 \\ 0 & \frac{1}{2\,\frac{3}{2}} & \frac{1}{4} \\ 1 & \frac{1}{4\,\sqrt{5}} & \frac{\cos(2\,\mathrm{atan}(2))}{16} \\ 0 & \frac{1}{2\,\sqrt{5}} & \frac{\sin(2\,\mathrm{atan}(2))}{16} \end{pmatrix}$$

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

(%o4) $true$

```
(%i13) XTXi: expand(invert(transpose(X).X));
```

(%o13)
$$\begin{pmatrix} 2.258028987045456 & -6.679762326317997 & 10.86893929345364 \\ -6.679762326317997 & 25.45773911931836 & -40.33581090531714 \\ 10.86893929345364 & -40.33581090531716 & 79.12893662426502 \end{pmatrix}$$

```
(%i9)  XT: expand(transpose(X));
```

(%o9)
$$\begin{pmatrix} 1 & 0 & 1 & 0 \\ 0.3535533905932737 & 0.3535533905932737 & 0.1118033988749894 & 0.2236067977499789 \\ 0 & 0.25 & -0.03749999999999999 & 0.05000000000000001 \end{pmatrix}$$

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

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

```
(%i14) A: expand(XTXi.XT.output);
```

(%o14)
$$\begin{pmatrix} -0.5946110943097662 \\ 2.592450233304033 \\ 0.4584567681888281 \end{pmatrix}$$