```
(%i10) load("eigen");$
```

(% o10)

"C:/maxima-5.45.1/share/maxima/5.45.1/share/matrix/eigen.mac"

```
(%i2) producto(f, g) :=~ integrate(f * g * sqrt(1 - t^ 2), t, a, b);
```

$$\text{producto}\left(f,g\right):=\int_{a}^{b} fg\sqrt{1-t^2}dt \qquad \text{(\% o2)}$$

```
(%i3) e:gramschmidt([1, t, t^ 2, t^ 3, t^ 4], producto), a = -1, b = 1;
```

$$\left[1,t,\frac{(2t-1)\ (2t+1)}{4},\frac{t\left(2t^2-1\right)}{2},\frac{\left(4t^2-2t-1\right)\ \left(4t^2+2t-1\right)}{16}\right] \qquad \text{(\% o3)}$$

```
(%i4) e:expand(e);
```

$$\left[1,t,t^2-\frac{1}{4},t^3-\frac{t}{2},t^4-\frac{3t^2}{4}+\frac{1}{16}\right] \qquad \text{(\% o4)}$$

```
(%i5) map(producto, [e[1], e[1], e[1], e[2], e[2], e[3]], [e[2], e[3], e[4], e[3], e[4], e[4]]), a
      = -1, b =~ 1;
```

$$[0,0,0,0,0,0] \qquad \text{(\% o5)}$$

```
(%i6) e[1]/sqrt(producto(e[1], e[1])), a = -1, b = 1;
      e[2]/sqrt(producto(e[2], e[2])), a = -1, b = 1;
      e[3]/sqrt(producto(e[3], e[3])), a = -1, b = 1;
      e[4]/sqrt(producto(e[4], e[4])), a = -1, b = 1;
```

$$\frac{\sqrt{2}}{\sqrt{\pi}} \qquad \text{(\% o6)}$$

$$\frac{2^{\frac{3}{2}}t}{\sqrt{\pi}} \qquad \text{(\% o7)}$$

$$\frac{2^{\frac{5}{2}}\left(t^2-\frac{1}{4}\right)}{\sqrt{\pi}} \qquad \text{(\% o8)}$$

$$\frac{2^{\frac{7}{2}}\left(t^3-\frac{t}{2}\right)}{\sqrt{\pi}} \qquad \text{(\% o9)}$$