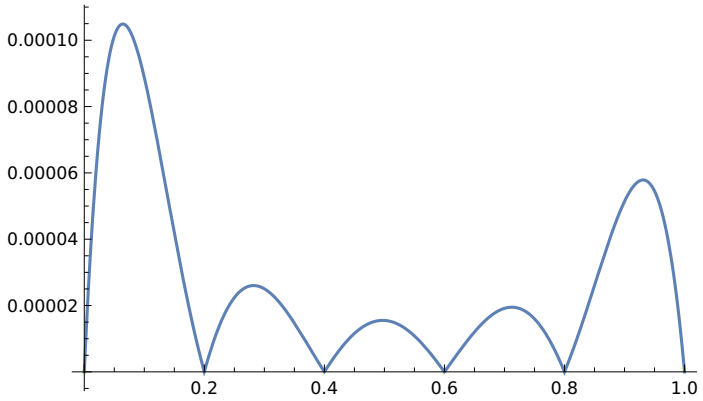
In[1]:=
```
n = 5;
Do[x[k] = k / n, {k, 0, n}];
f[t_] := 1 / (1 + t);
w[t_] := Product[t - x[k], {k, 0, n}];
Do[v[k_, t_] := w[t] / (t - x[k]), {k, 0, n}];
Do[l[k_, t_] := v[k, t] / Simplify[v[k, t] /. t → x[k]], {k, 0, n}];
L[f_, t_] := Sum[l[k, t] * f[x[k]], {k, 0, n}]
m = Expand[L[f, t]]
Plot[Abs[f[t] - m], {t, 0, 1}, PlotRange → All]
```

Out[8]=

$$1 - \frac{251\,t}{252} + \frac{2875\,t^2}{3024} - \frac{4625\,t^3}{6048} + \frac{625\,t^4}{1512} - \frac{625\,t^5}{6048}$$

Out[9]=



In[10]:=

```
n = 5;
Do[x[k] = (Sin[(2 k + 1) * Pi / (4 n + 4)])^2, {k, 0, n}];
f[t_] := 1 / (1 + t);
w[t_] := Product[t - x[k], {k, 0, n}];
Do[v[k_, t_] := w[t] / (t - x[k]), {k, 0, n}];
Do[l[k_, t_] := v[k, t] / Simplify[v[k, t] /. t → x[k]], {k, 0, n}];
L[f_, t_] := Sum[l[k, t] * f[x[k]], {k, 0, n}]
m = Expand[L[f, t]]
Plot[Abs[f[t] - m], {t, 0, 1}, PlotRange → All]
```

Out[17]=

$$\frac{256\sqrt{2}\,t^5}{3\left(1+\sqrt{3}\right)\left(1+\cos\left[\frac{\pi}{24}\right]^2\right)} - \frac{256\sqrt{2}\,t^4\cos\left[\frac{\pi}{8}\right]^2}{3\left(1+\sqrt{3}\right)\left(1+\cos\left[\frac{\pi}{24}\right]^2\right)} - \frac{256\sqrt{2}\,t^5}{3\ \cdots 1\ \cdots} + \cdots 282 \cdots + \frac{256\sqrt{2}\cos\left[\frac{\pi}{24}\right]^2\cos\left[\frac{\pi}{8}\right]^2\cos\left[\frac{5\pi}{24}\right]^2\sin\left[\frac{\pi}{24}\right]^2\sin\left[\frac{\pi}{8}\right]^2}{3\left(-1+\sqrt{3}\right)\left(1+\sin\left[\frac{5\pi}{24}\right]^2\right)}$$

Full expression not available (original memory size: 0.3 MB)

Out[18]=