

```
In[3]:= f[n_] := (2 / l) ^ (1 / 2) Sin[n Pi x / l]
        phi := (1 / l) ^ 1 / 2 (1 / 4 - (x / l - 1 / 2) ^ 2)
```

```
In[5]:= c[n_] := Integrate[f[n] phi, {x, 0, l}]
```

```
In[6]:= c[1]
```

$$\text{Out[6]} = \frac{2 \sqrt{2} \sqrt{\frac{1}{l}}}{\pi^3}$$

```
In[7]:= c[2]
```

```
Out[7]= 0
```

```
In[8]:= c[3]
```

$$\text{Out[8]} = \frac{2 \sqrt{2} \sqrt{\frac{1}{l}}}{27 \pi^3}$$

```
In[9]:= c[4]
```

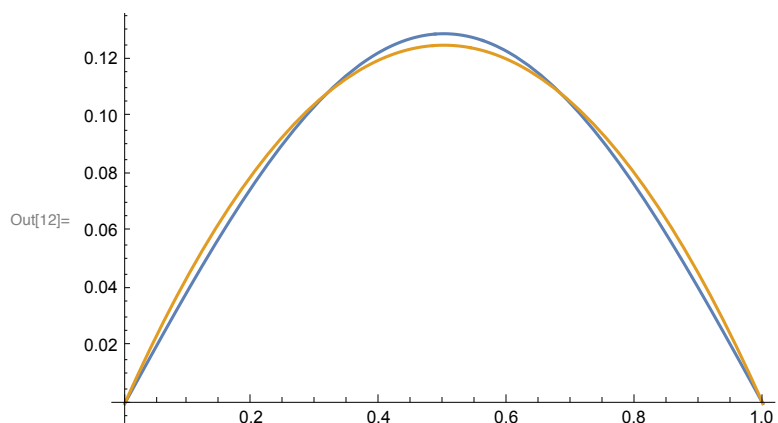
```
Out[9]= 0
```

```
In[8]:= l := 1
```

```
        h := 1
```

```
In[10]:= sumF[n_] := Sum[c[i] f[i], {i, 1, n}]
```

```
In[12]:= Plot[{Evaluate[sumF[2]], phi}, {x, 0, 1}]
```



In[13]:= `Plot[{Evaluate[sumF[4]], phi}, {x, 0, 1}]`

