Illustration/Example of Spivak Chapter 3, Problem 6(b)

In[25]:= **x1 = 2;**
x2 = 5;
x3 = 7;
x4 = 10;

In[29]:= $\mathbf{f4[x\_] := \dfrac{(x - x1)\ (x - x2)\ (x - x3)}{(x4 - x1)\ (x4 - x2)\ (x4 - x3)}}$

In[30]:= **Plot[f4[x], {x, 0, 12}]**

Out[30]=
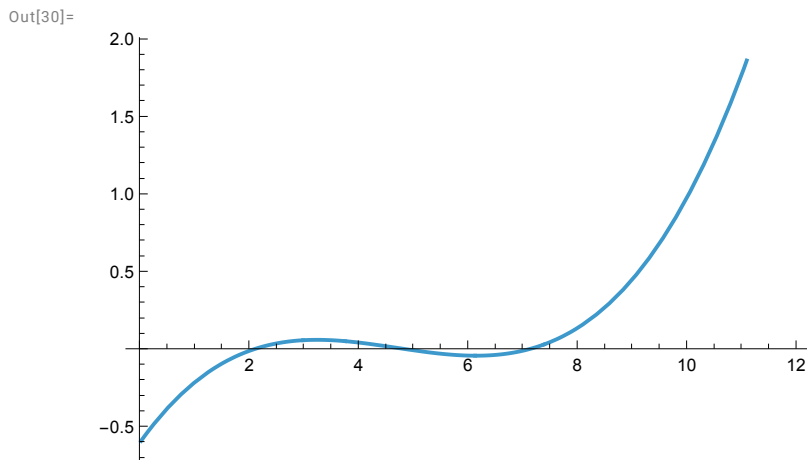
In[31]:= $\mathbf{f3[x\_] := \dfrac{(x - x1)\ (x - x2)\ (x - x4)}{(x3 - x1)\ (x3 - x2)\ (x3 - x4)}}$
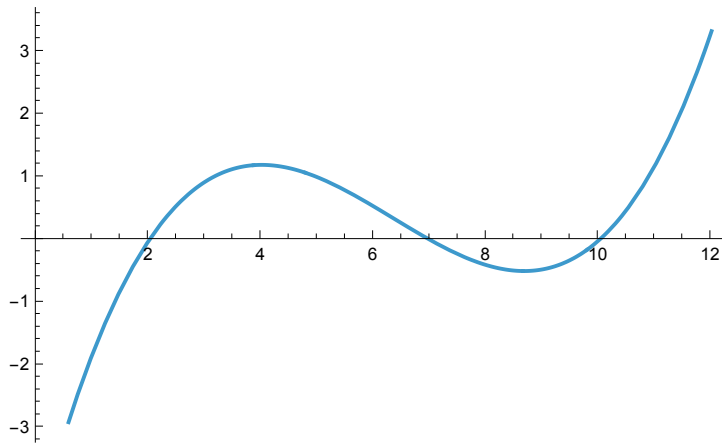
In[32]:= **Plot[f3[x], {x, 0, 12}]**

Out[32]=
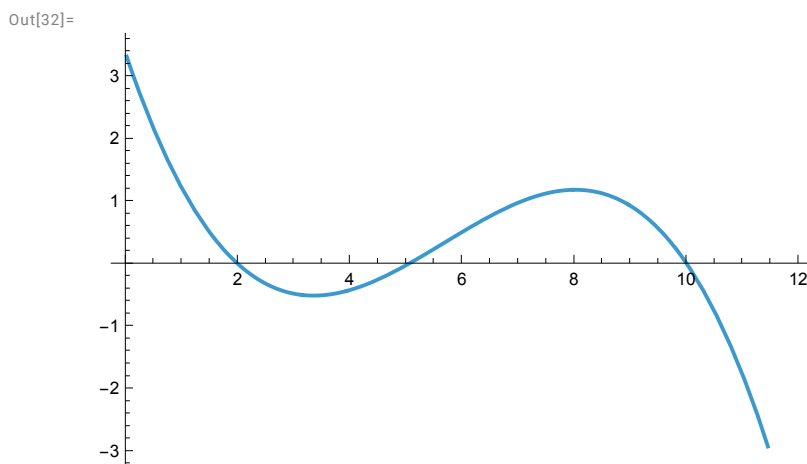
In[33]:= $\mathbf{f2[x\_] := \dfrac{(x - x1)\ (x - x3)\ (x - x4)}{(x2 - x1)\ (x2 - x3)\ (x2 - x4)}}$
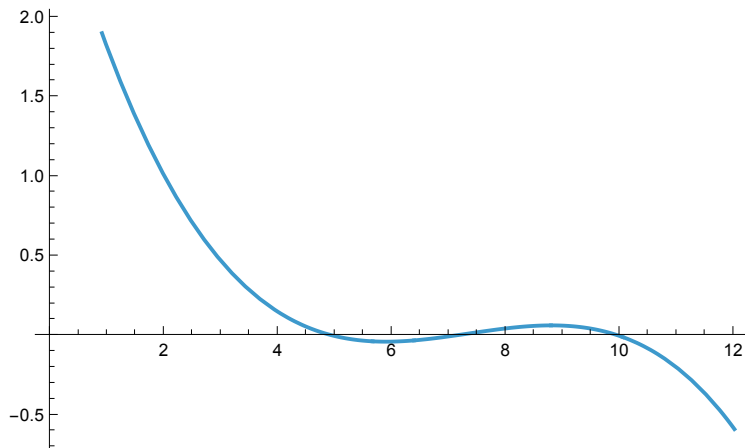
In[34]:= `Plot[f2[x], {x, 0, 12}]`

Out[34]=

In[35]:= $f1[x\_] := \dfrac{(x - x2) \ (x - x3) \ (x - x4)}{(x1 - x2) \ (x1 - x3) \ (x1 - x4)}$
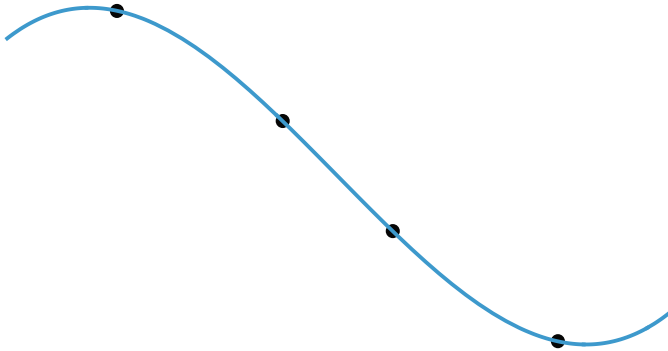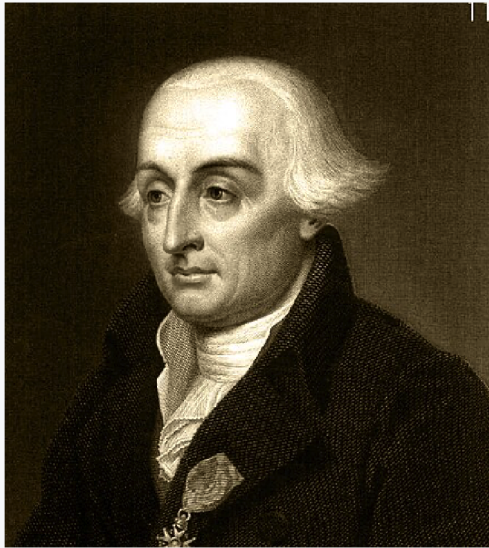
In[36]:= `Plot[f1[x], {x, 0, 12}]`

Out[36]=

In[37]:= `g[x_] := 8 f1[x] + 6 f2[x] + 4 f3[x] + 2 f4[x]`

In[38]:= `Show[Graphics[Style[Point[{{2, 8}, {5, 6}, {7, 4}, {10, 2}}], PointSize[0.02]]],`
`Plot[g[x], {x, 0, 12}]]`

Out[38]=

In[39]:=

Joseph-Louis Lagrange

Born	Giuseppe Lodovico Lagrangia
	25 January 1736
	Turin, Kingdom of Sardinia
Died	10 April 1813 (aged 77)
	Paris, First French Empire
Citizenship	Sardinia
	French Empire
Alma mater	University of Turin

In[40]:=

In[41]:=