

```
In[1]:= P[x_] := 1 / (1 + x + x^2)
```

```
In[48]:= Product[P[x^(2^k)], {k, 0, 9}];
```

```
In[18]:= Series[%16, {x, 0, 63}]
```

```
Out[18]= 1 - x - x^2 + 2 x^3 - 2 x^4 + 4 x^6 - 4 x^7 - 2 x^8 + 6 x^9 - 4 x^10 - 2 x^11 + 10 x^12 -  
8 x^13 - 6 x^14 + 14 x^15 - 10 x^16 - 4 x^17 + 20 x^18 - 16 x^19 - 8 x^20 +  
24 x^21 - 18 x^22 - 6 x^23 + 34 x^24 - 28 x^25 - 14 x^26 + 42 x^27 - 34 x^28 -  
8 x^29 + 56 x^30 - 48 x^31 - 18 x^32 + 66 x^33 - 52 x^34 - 14 x^35 + 86 x^36 -  
72 x^37 - 30 x^38 + 102 x^39 - 80 x^40 - 22 x^41 + 126 x^42 - 104 x^43 -  
40 x^44 + 144 x^45 - 110 x^46 - 34 x^47 + 178 x^48 - 144 x^49 - 62 x^50 +  
206 x^51 - 158 x^52 - 48 x^53 + 248 x^54 - 200 x^55 - 82 x^56 + 282 x^57 -  
208 x^58 - 74 x^59 + 338 x^60 - 264 x^61 - 122 x^62 + 386 x^63 + O[x]^64
```

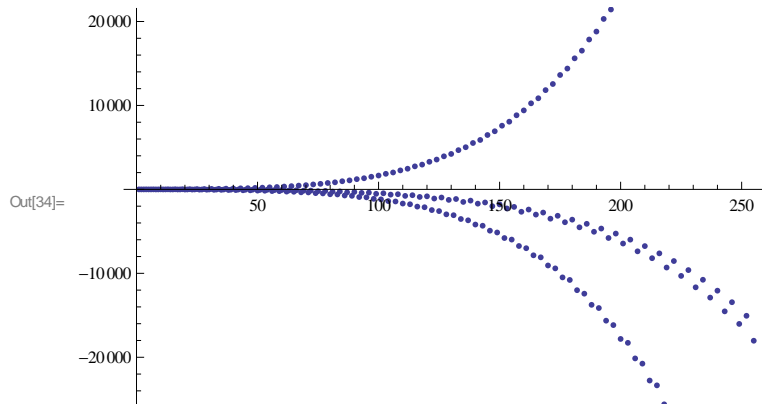
```
In[19]:= CoefficientList[Series[%16, {x, 0, 63}], x]
```

```
Out[19]= {1, -1, -1, 2, -2, 0, 4, -4, -2, 6, -4, -2, 10, -8, -6, 14, -10,  
-4, 20, -16, -8, 24, -18, -6, 34, -28, -14, 42, -34, -8,  
56, -48, -18, 66, -52, -14, 86, -72, -30, 102, -80, -22,  
126, -104, -40, 144, -110, -34, 178, -144, -62, 206, -158,  
-48, 248, -200, -82, 282, -208, -74, 338, -264, -122, 386}
```

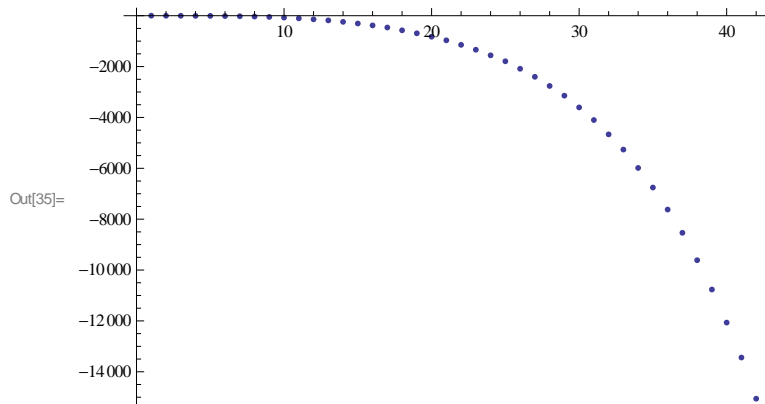
```
In[27]:= Series[%16, {x, 0, 1023}];
```

```
In[33]:= CoefficientList[Series[%16, {x, 0, 255}], x];
```

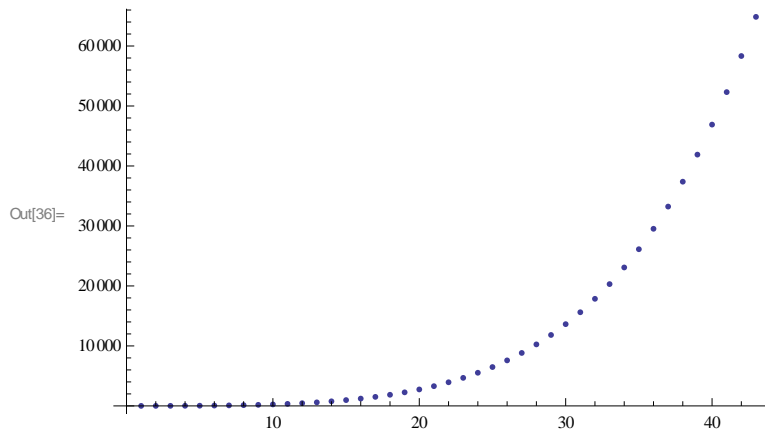
```
In[34]:= ListPlot[%33]
```



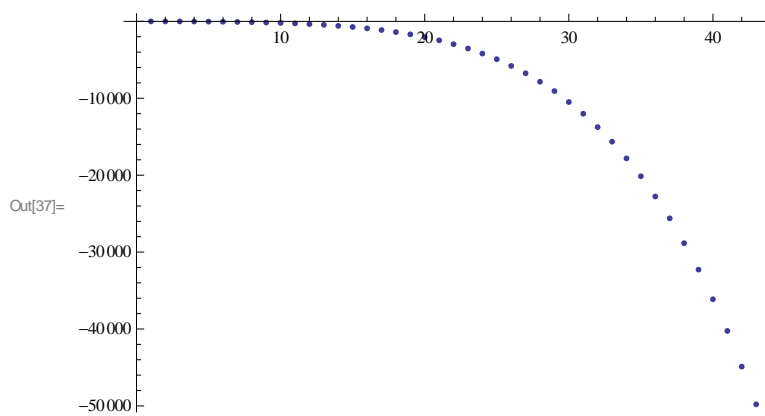
```
In[35]= ListPlot[Table[%33[[6 k]], {k, 1, 255/6}]]
```



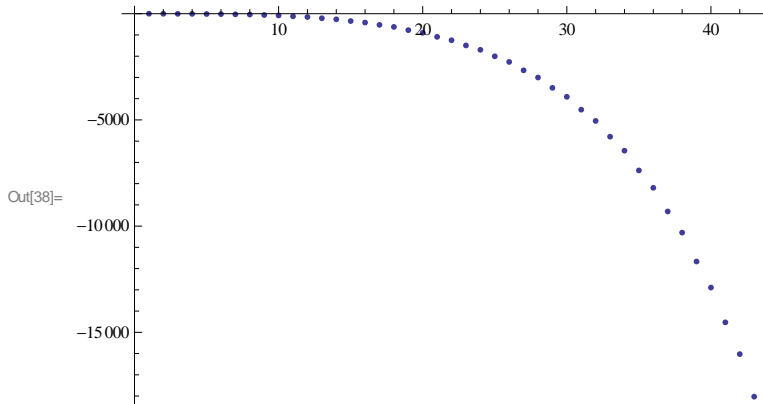
```
In[36]= ListPlot[Table[%33[[6 k + 1]], {k, 0, 254/6}]]
```



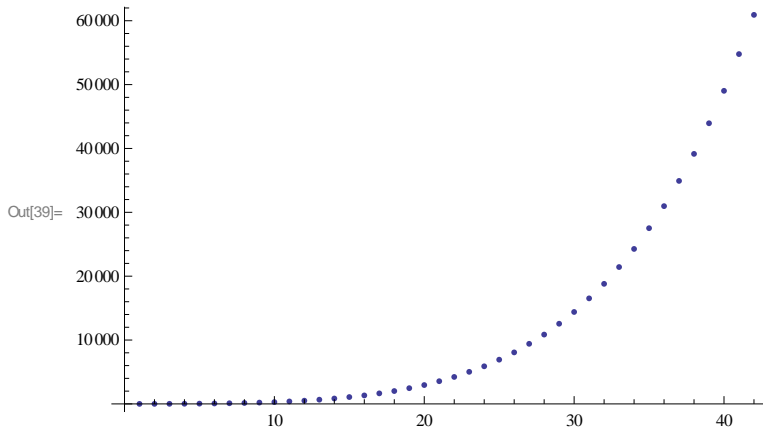
```
In[37]= ListPlot[Table[%33[[6 k + 2]], {k, 0, 253/6}]]
```



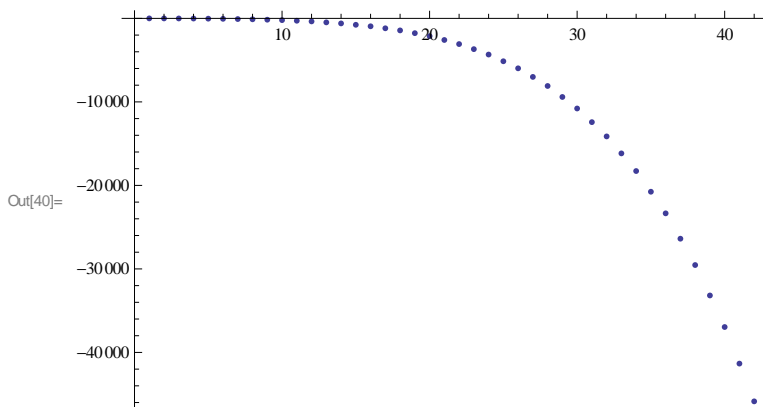
In[38]:= **ListPlot[Table[%33[[6 k + 3]], {k, 0, 252/6}]]**



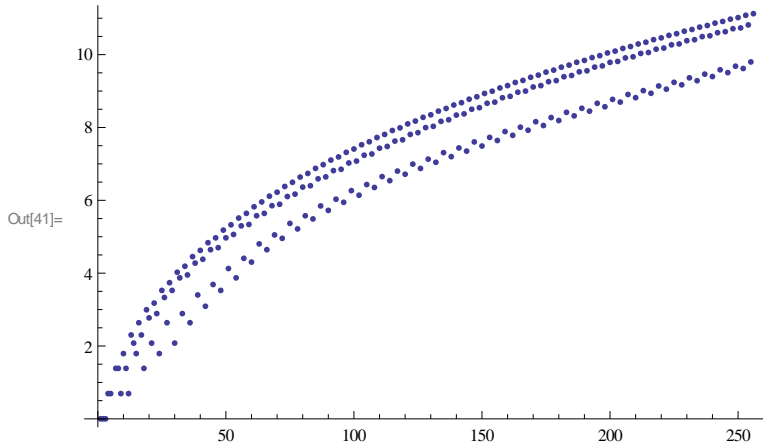
In[39]:= **ListPlot[Table[%33[[6 k + 4]], {k, 0, 251/6}]]**



In[40]:= **ListPlot[Table[%33[[6 k + 5]], {k, 0, 250/6}]]**

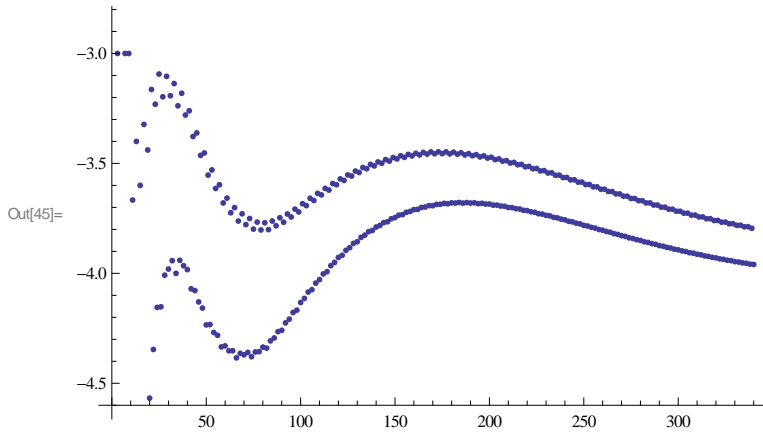


```
In[41]:= ListPlot[Log[Abs[%33]]]
```



```
In[42]:= CoefficientList[Series[%16, {x, 0, 1023}], x];
```

```
In[45]:= ListPlot[Table[%42[[3 k + 1]] / %42[[3 k]], {k, 1, 340}]]
```



```
In[47]:= ListPlot[Table[%42[[3 k + 3]] / %42[[3 k + 2]], {k, 1, 340}]]
```

