

```
In[5]:= max = 400;  
f = If[t == 0, 0, Sin[Pi^2 / t]]
```

```
Out[6]= If[t == 0, 0, Sin[ $\frac{\pi^2}{t}$ ]]
```

```
In[7]:= (* Wyrzaz staly jast 0 bo funkcja jest nieparzysta *)  
a = 0;
```

```
In[8]:= (* Wspolczynniki przy cosinusach sa 0 bo funkcja jest nieparzysta *)  
b = Table[0, {k, 1, max}];
```

```
In[9]:= (* Wspolczynniki przy sinusach *)  
c = Table[NIntegrate[f Sin[k t], {t, -Pi, Pi}] / Pi, {k, 1, max}]
```

NIntegrate::slwcon :

Numerical integration converging too slowly; suspect one of the following: singularity, value of the integration is 0, highly oscillatory integrand, or WorkingPrecision too small. >>

General::stop : Further output of NIntegrate::slwcon will be suppressed during this calculation. >>

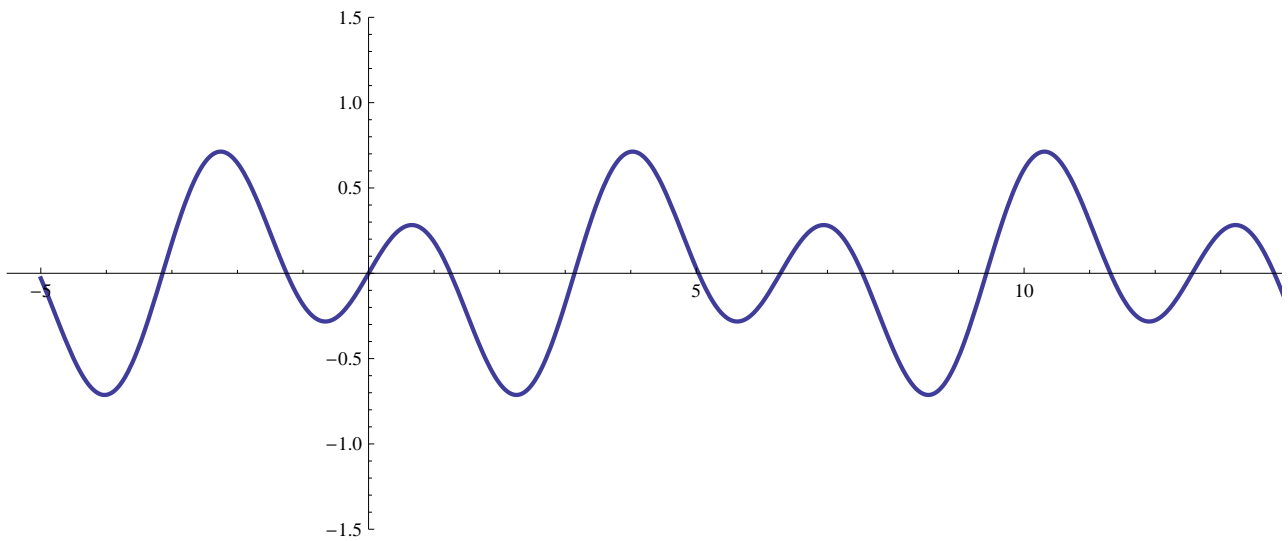
```

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-0.0878769, 0., 0.0830461, 0.128302, 0.104718, 0.0307158, -0.0364529, -0.071361,
-0.0749361, -0.0463465, -0.00917283, 0.0414605, 0.0637556, 0.0748118, 0.0560432,
0.0193472, -0.0229248, -0.0580305, -0.0768594, -0.0756057, -0.0563677, -0.0255475,
0.00809413, 0.0342949, 0.0525247, 0.0653542, 0.0418468, 0.0194551, -0.00711157,
-0.0316092, -0.0488179, -0.0553829, -0.049635, -0.0353732, -0.0135372, 0.0107697,
0.0323609, 0.048908, 0.0571075, 0.0296728, 0.0187977, 0., 0.0101727, -0.0101563,
-0.0242318, -0.0341546, -0.0372707, -0.0334181, -0.0235488, -0.00945151,
0.00652983, 0.0215173, 0.0340392, 0.0419668, 0.0445732, 0.0409517, 0.0321302,
0.0193823, 0.00442254, -0.010934, -0.0246383, -0.0339092, -0.0400948, -0.0415058,
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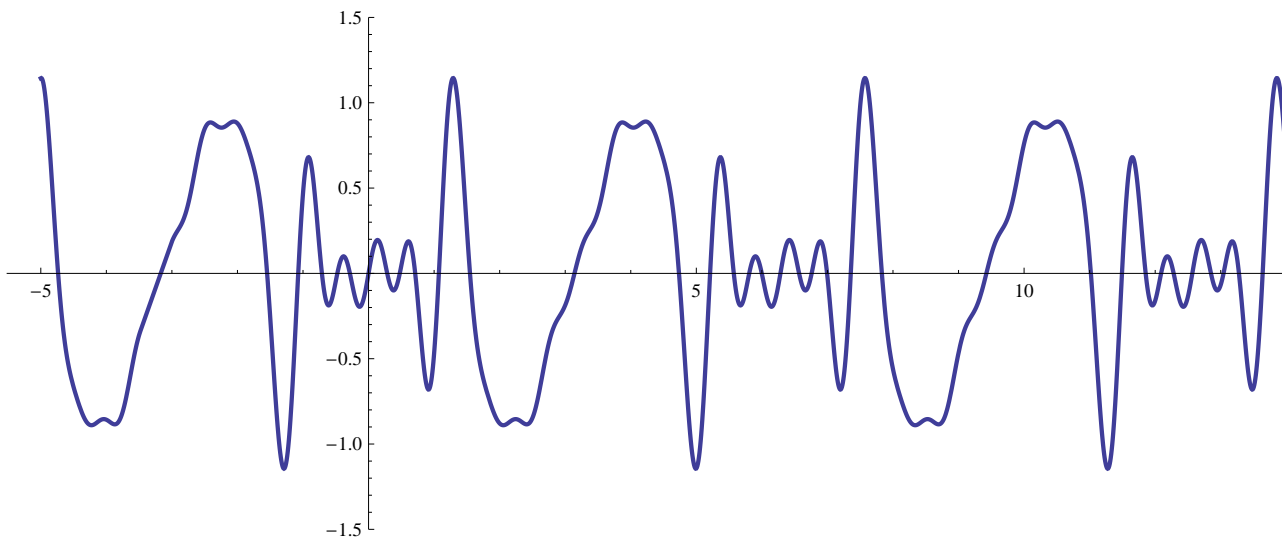
```

```
In[10]:= (* Rzut funkcji f na przestrzen rozpieta przez sin(kt) i cos (kt) dla k≤n *)
Do[
  fa[n_] := a + Sum[b[[k]] Cos[k t] + c[[k]] Sin[k t], {k, 1, n}];
  Print["n=", n, " : ", Plot[fa[n], {t, - 5, 20}, PlotStyle → Thick,
    PlotRange → 1.5, ImageSize → 800, AspectRatio → 0.3]], {n, 2, max, 10}];
```

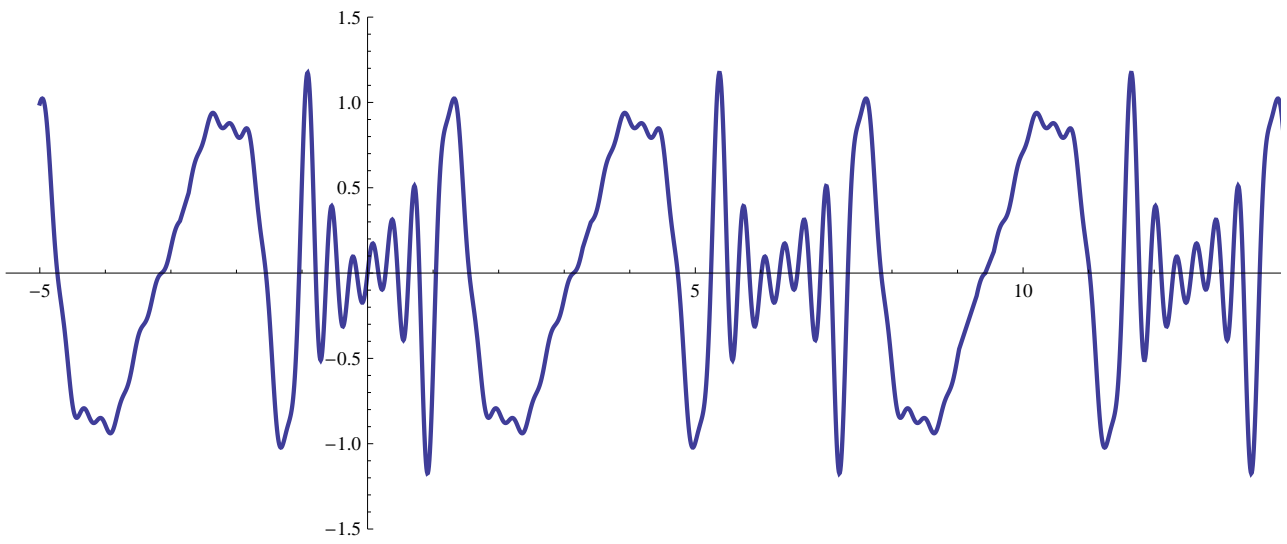
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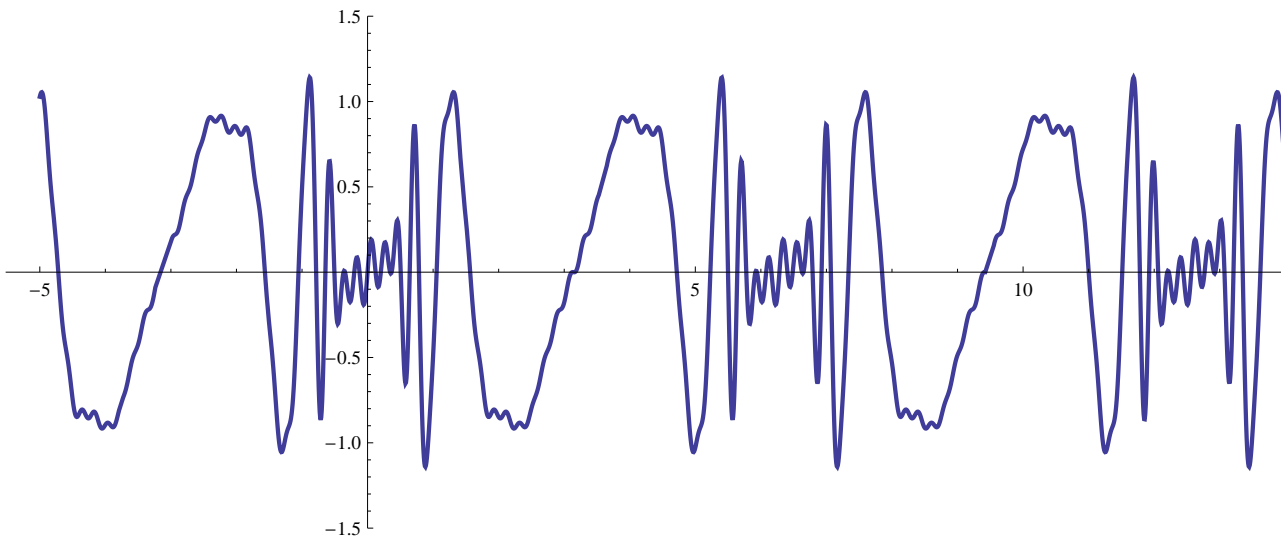
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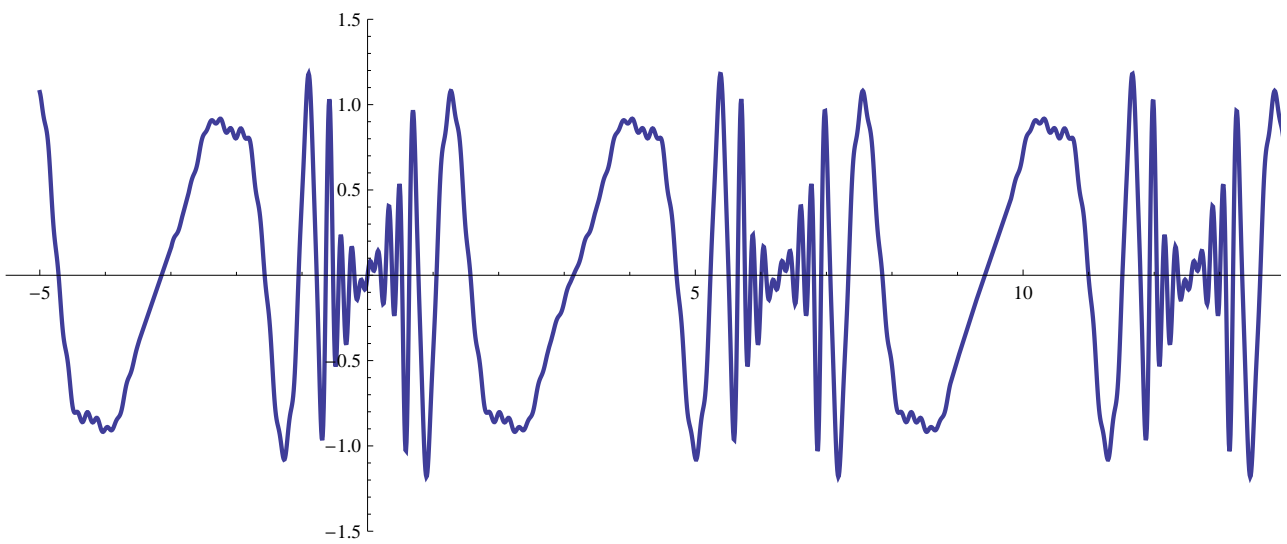
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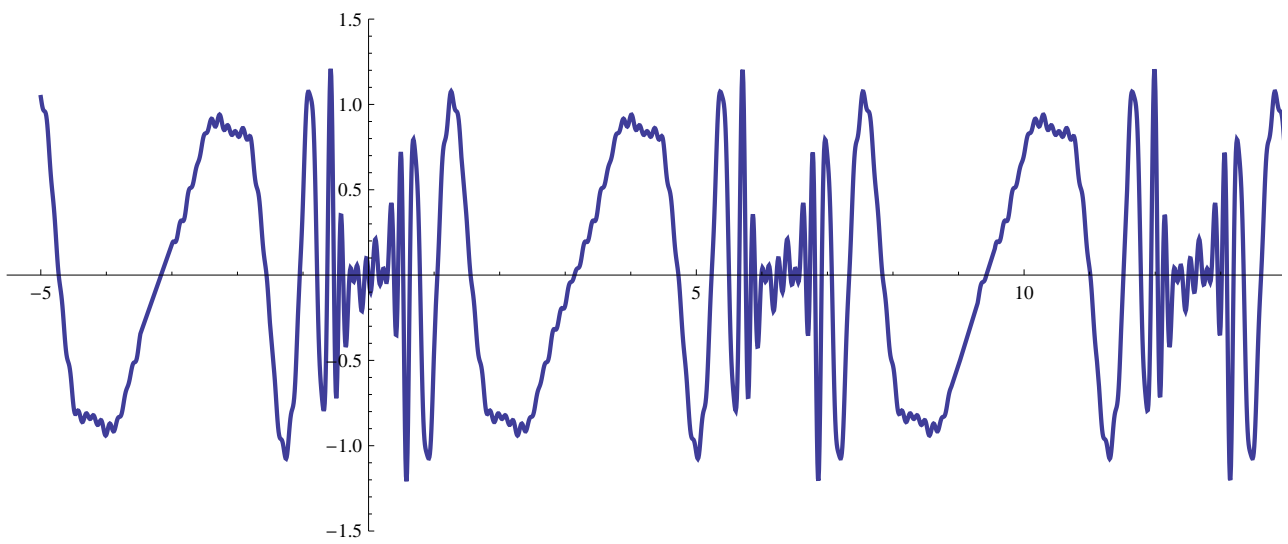
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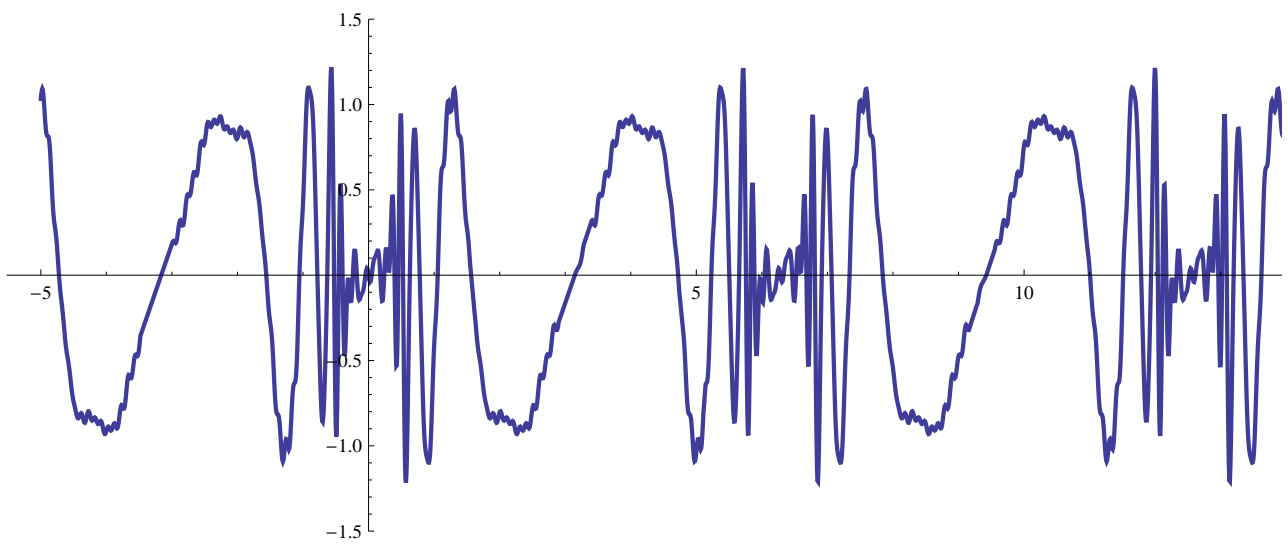
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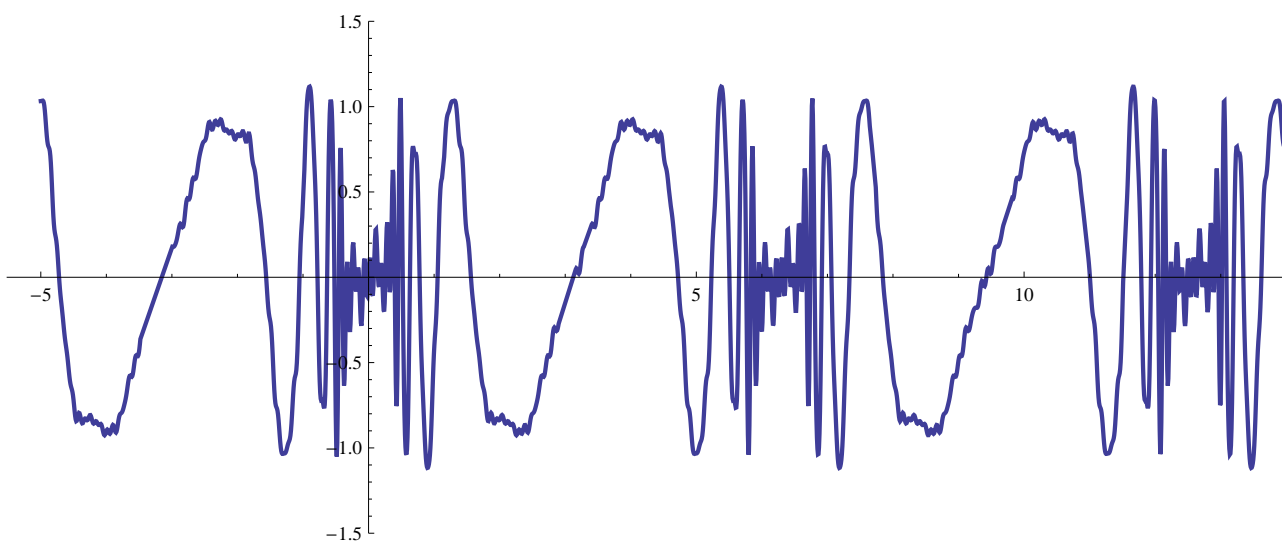
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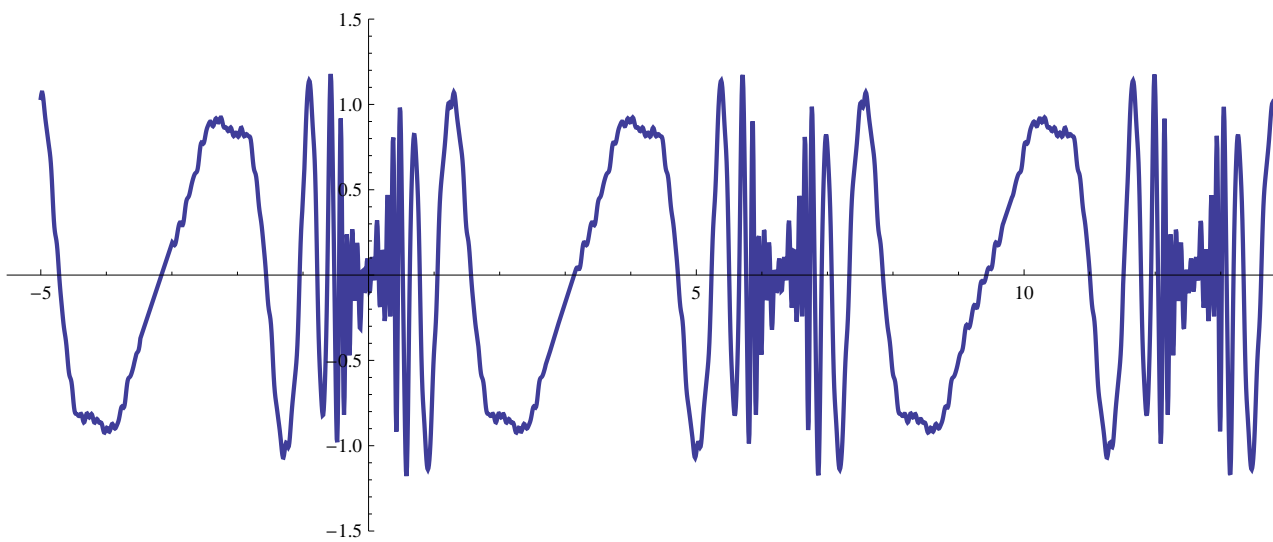
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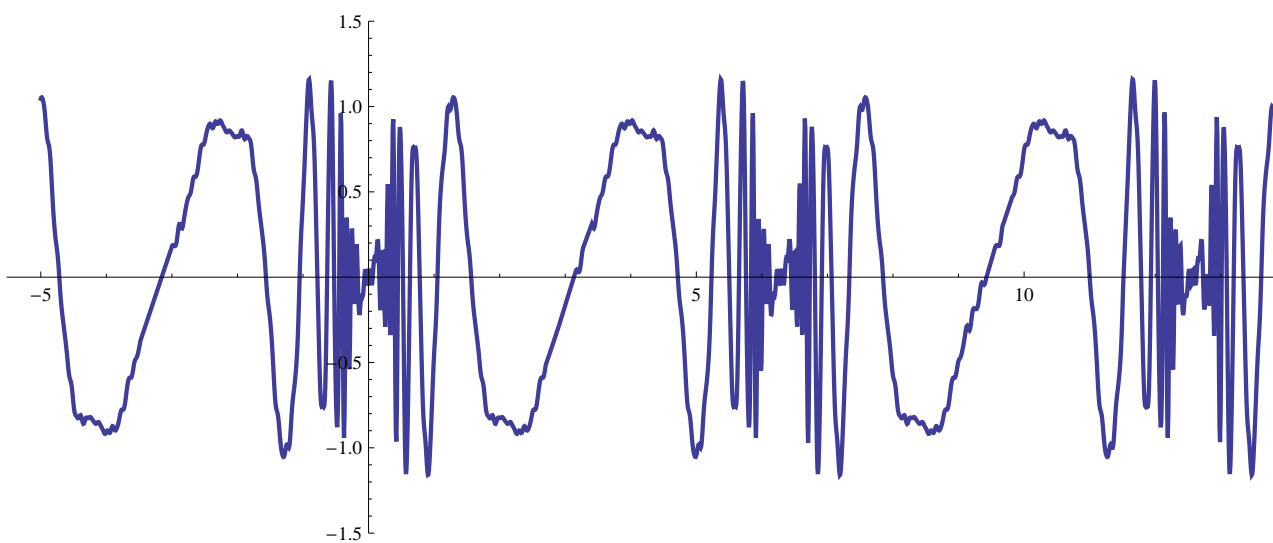
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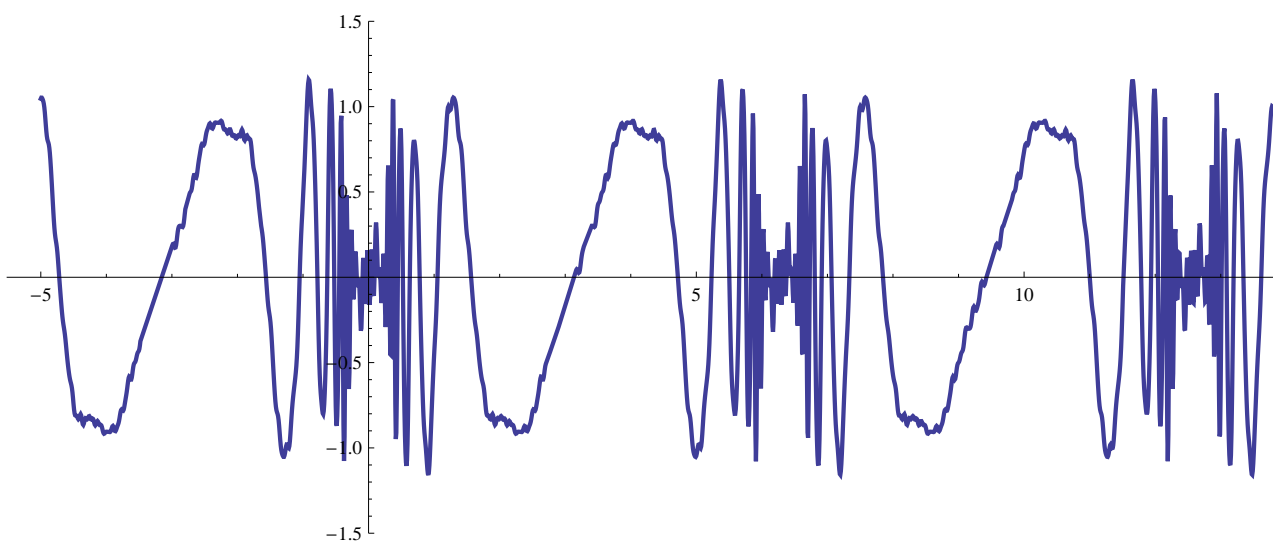
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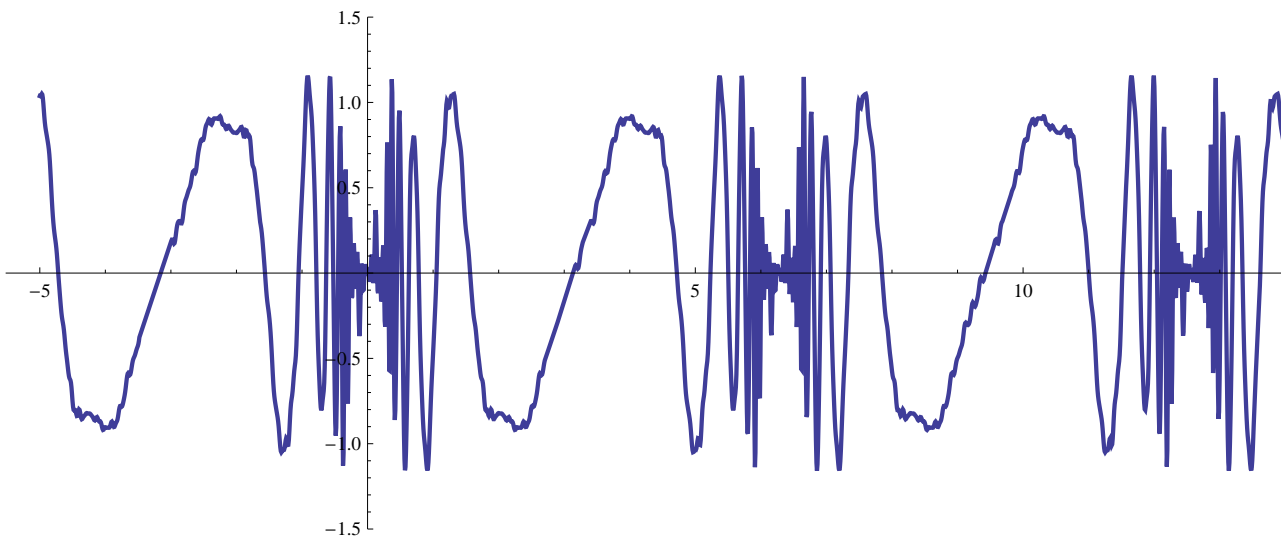
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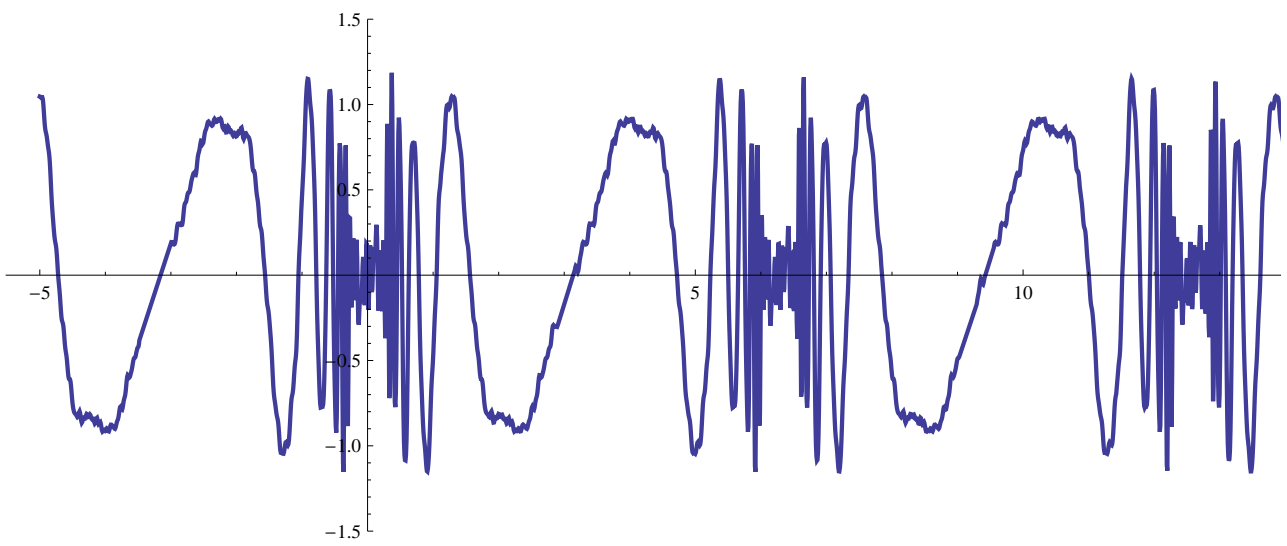
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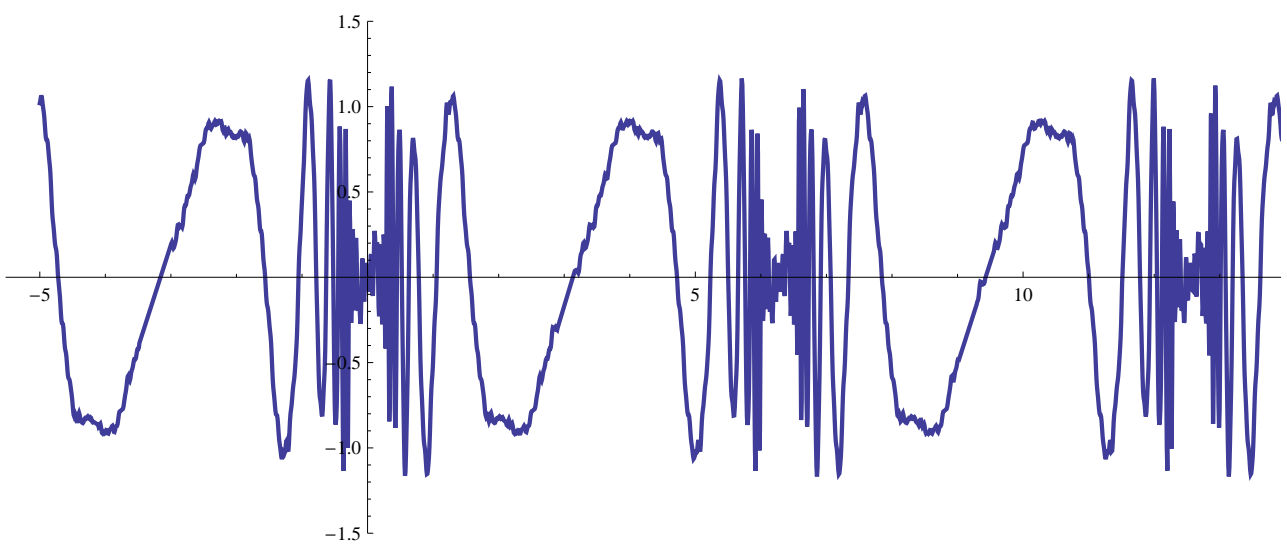
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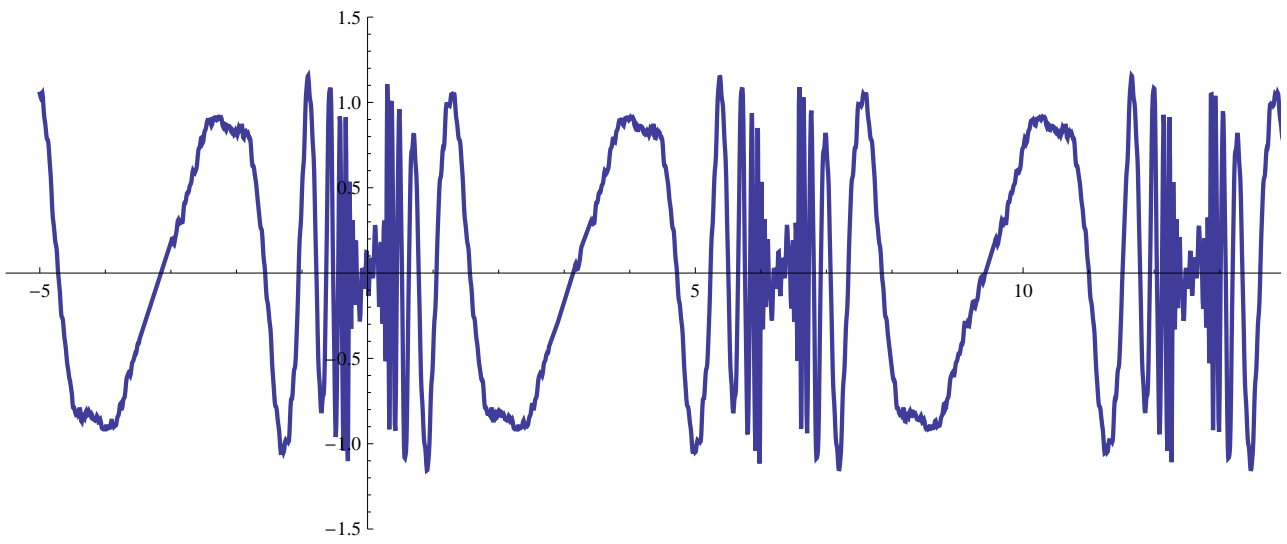
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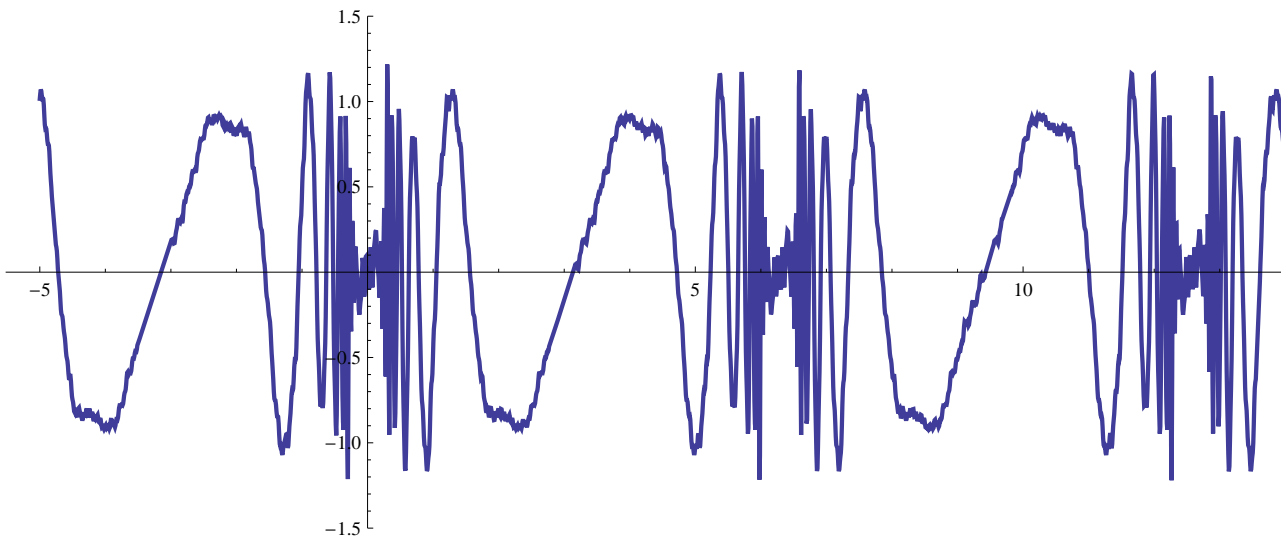
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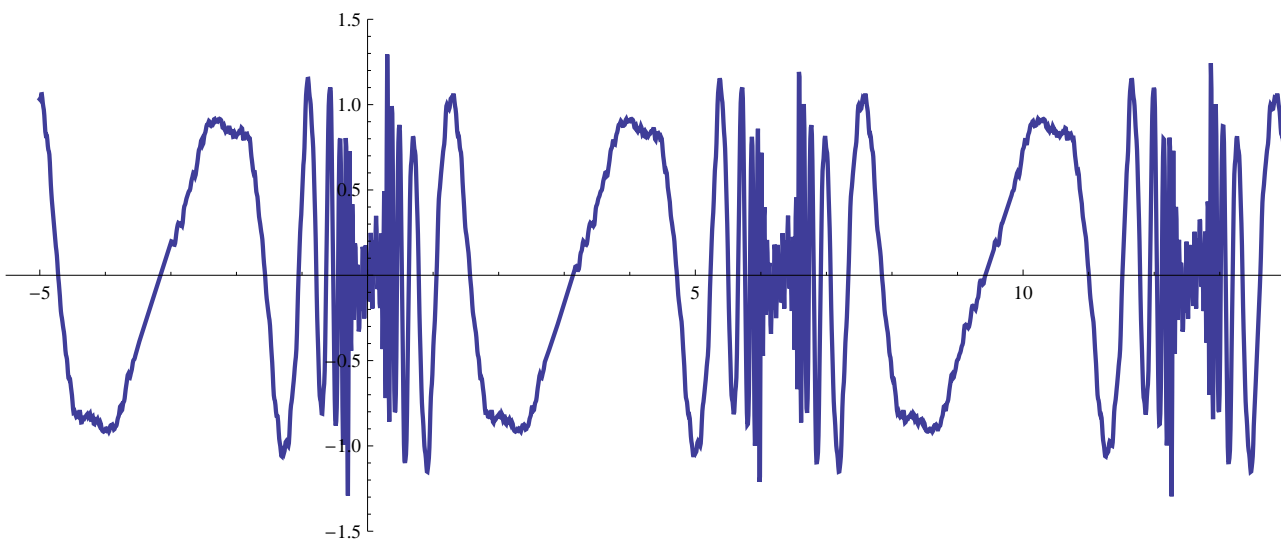
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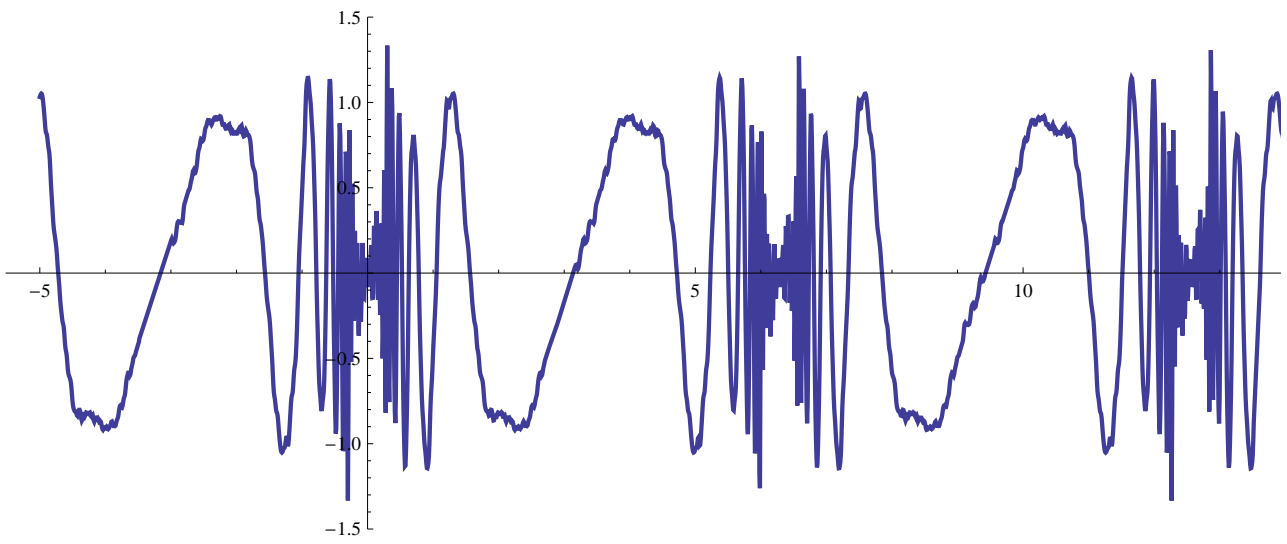
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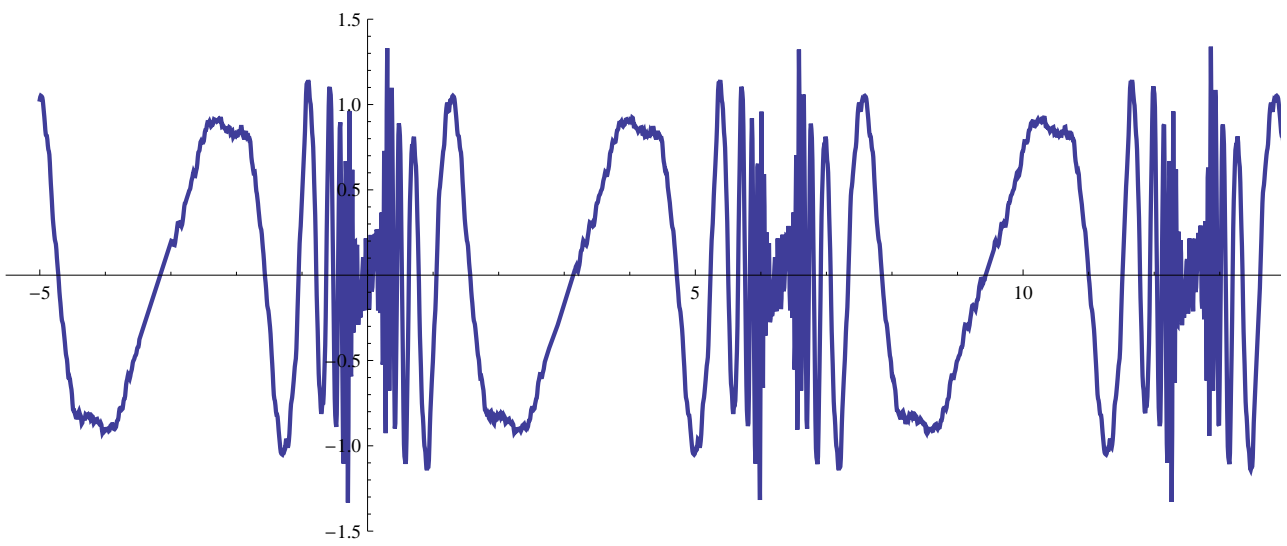
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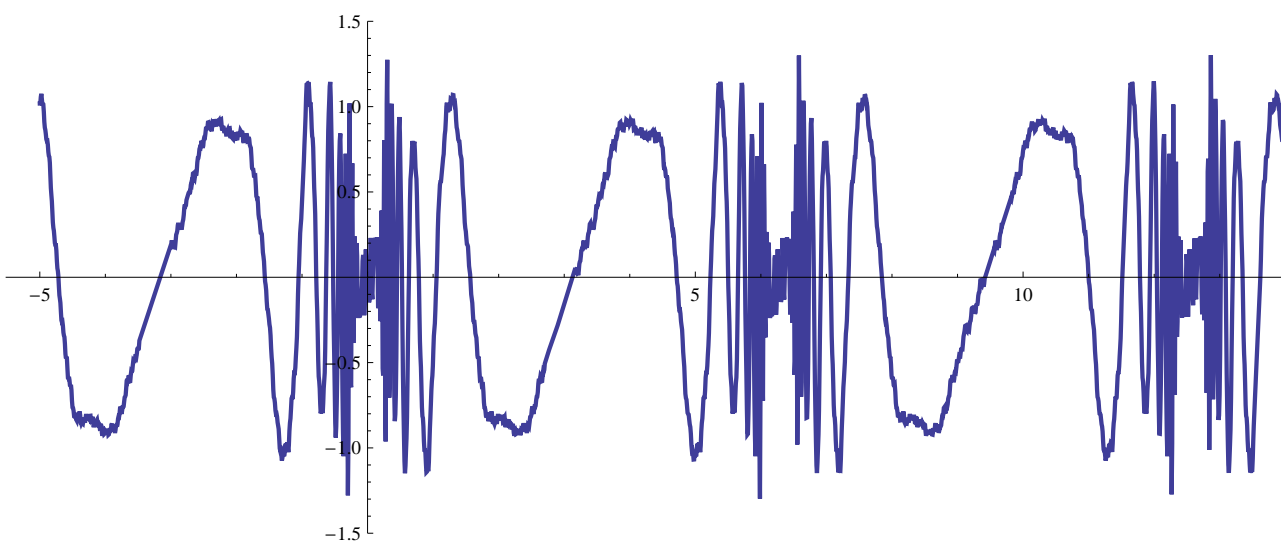
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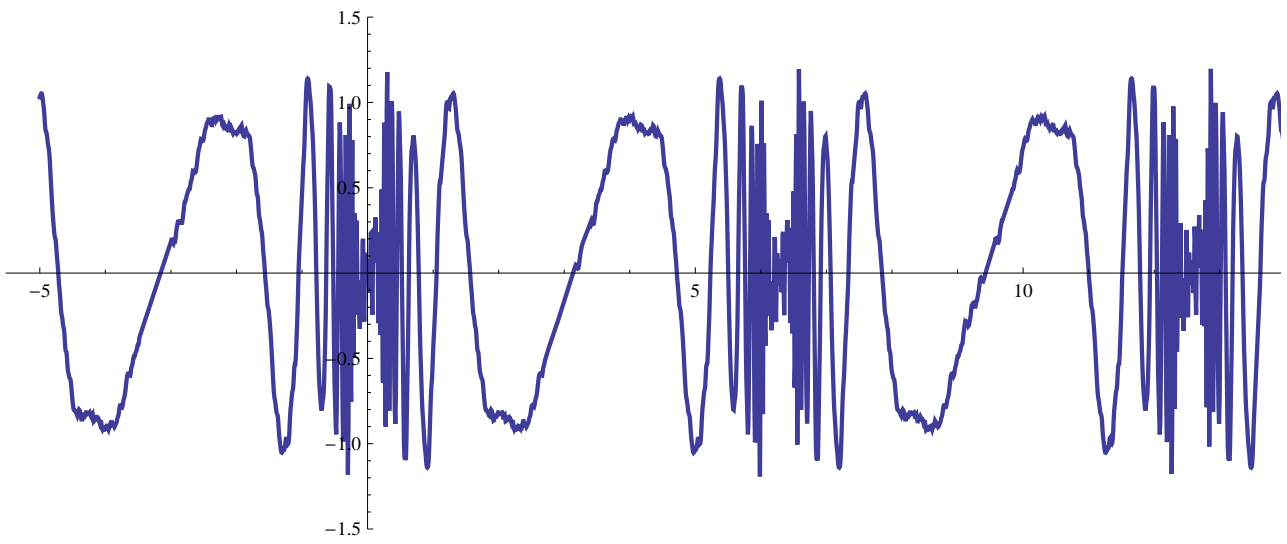
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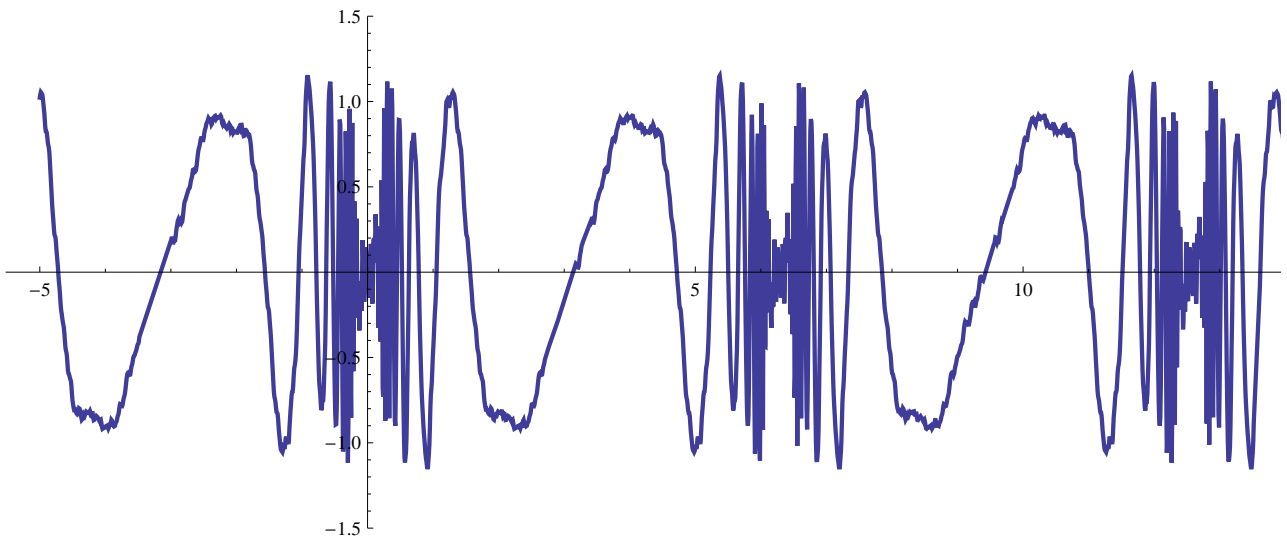
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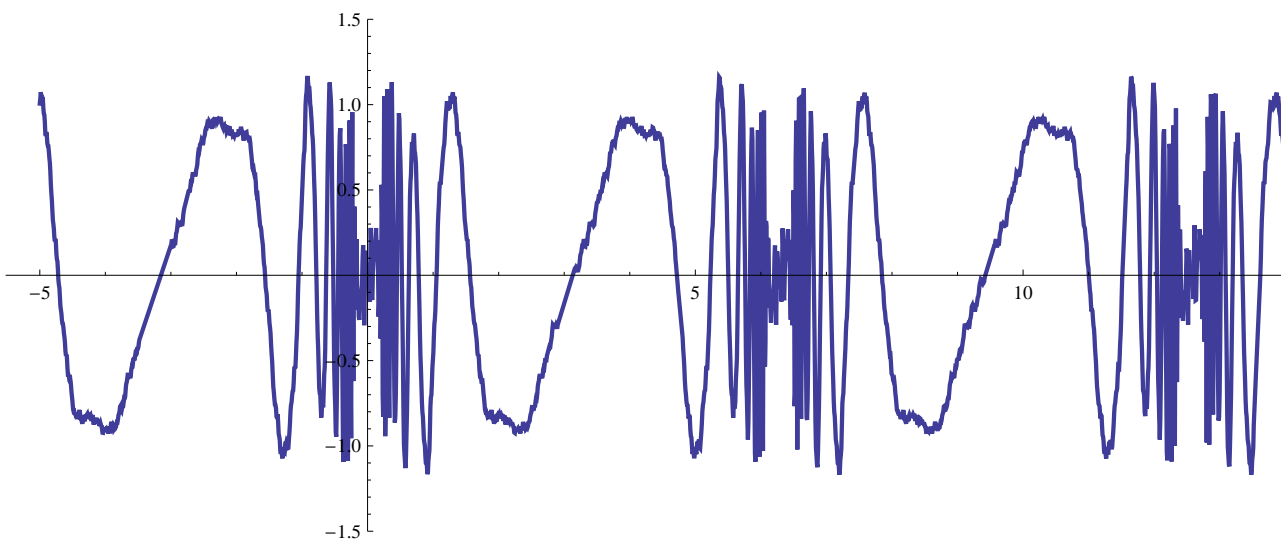
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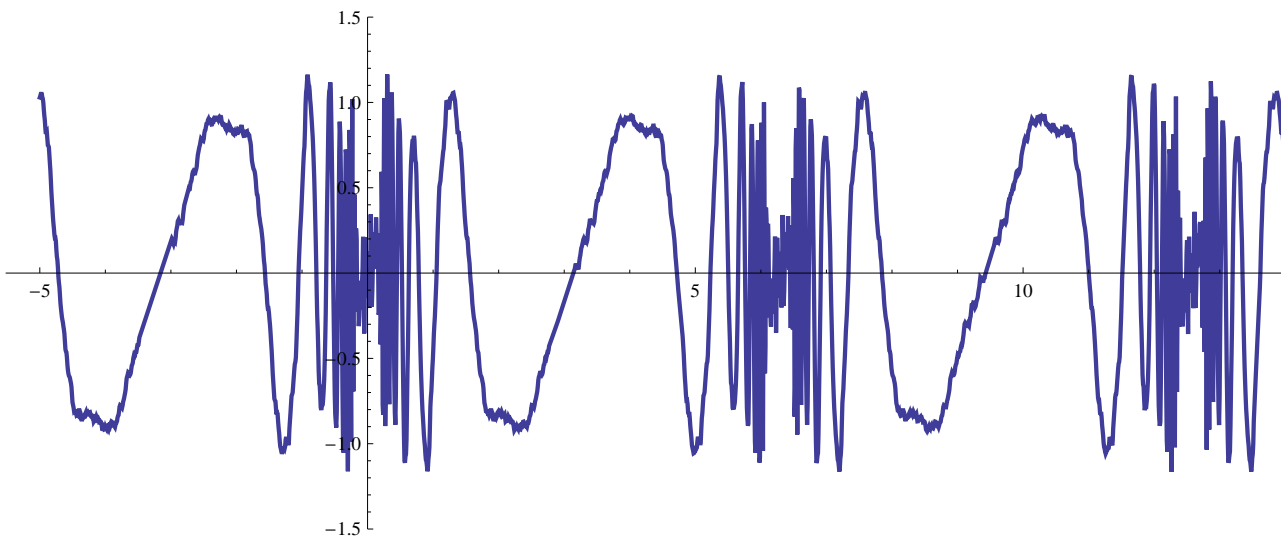
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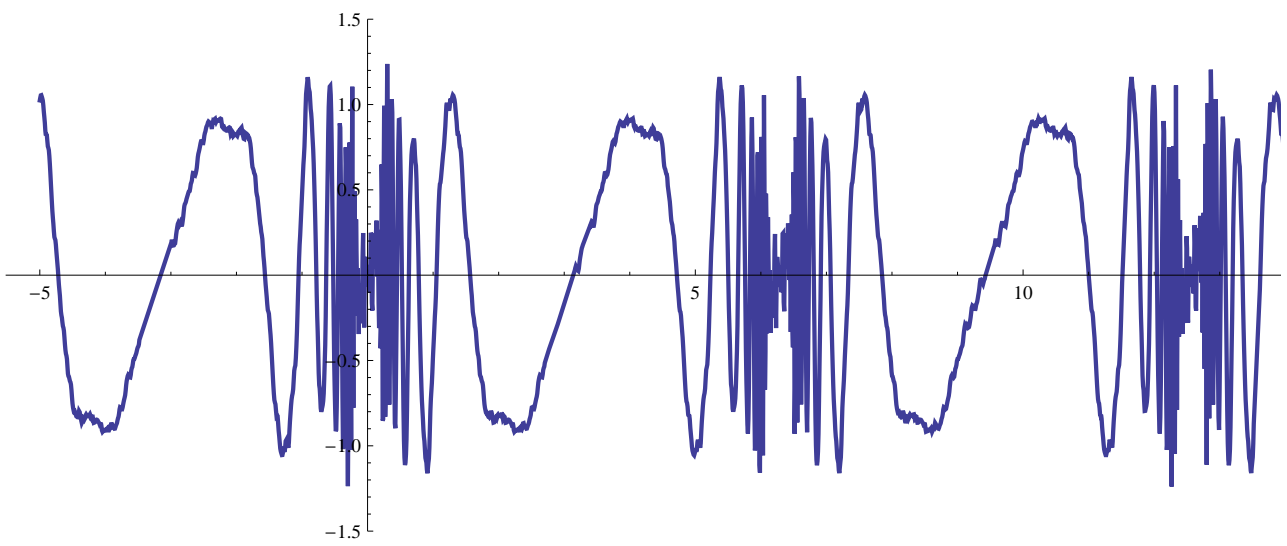
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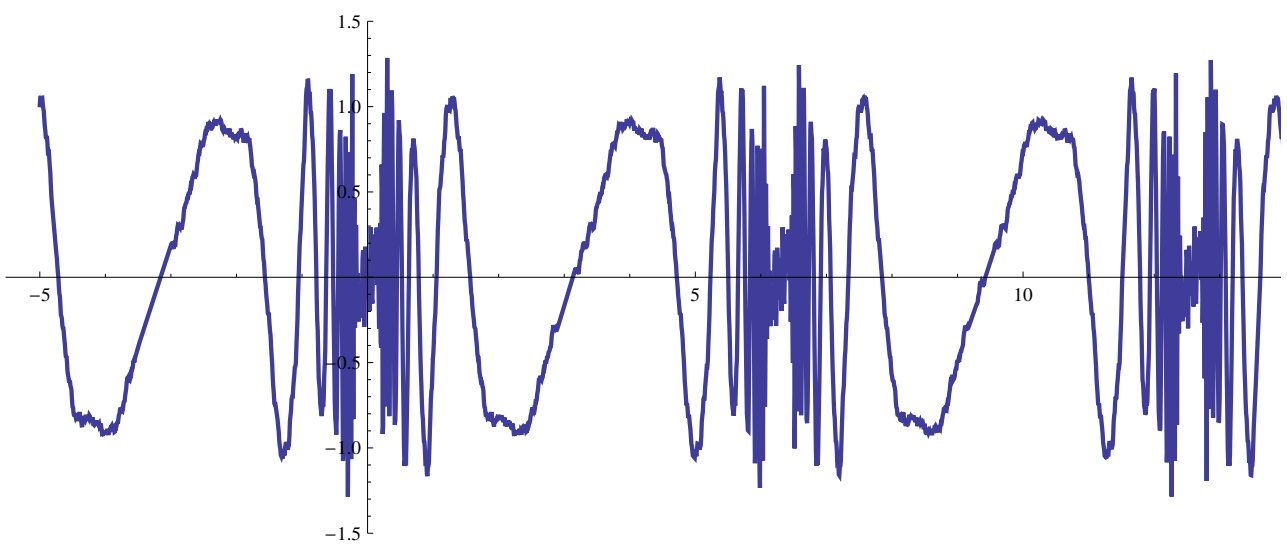
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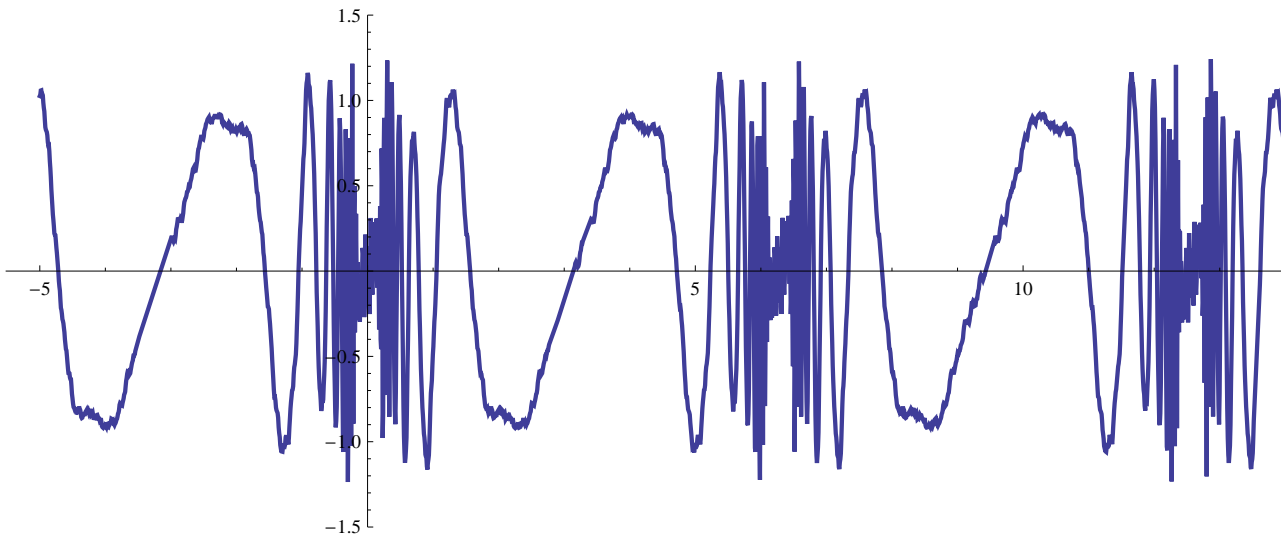
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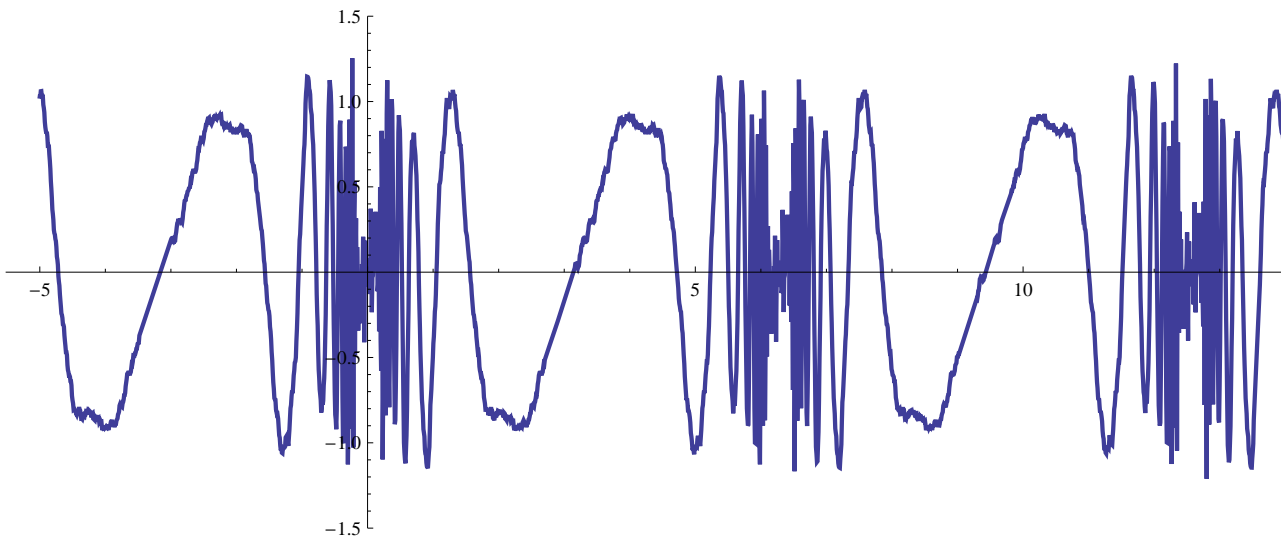
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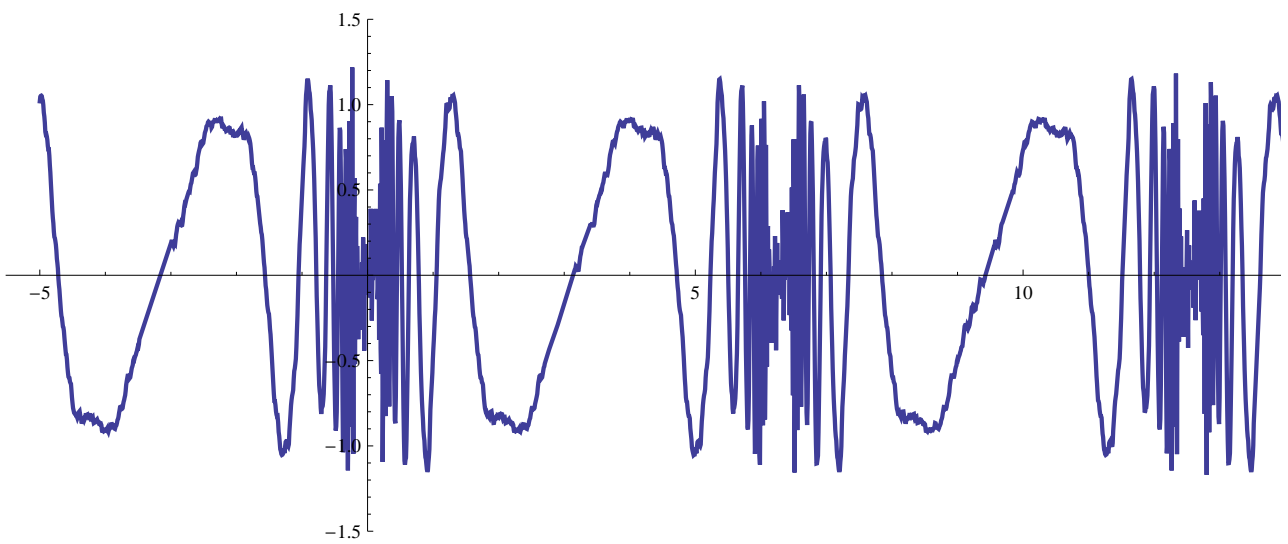
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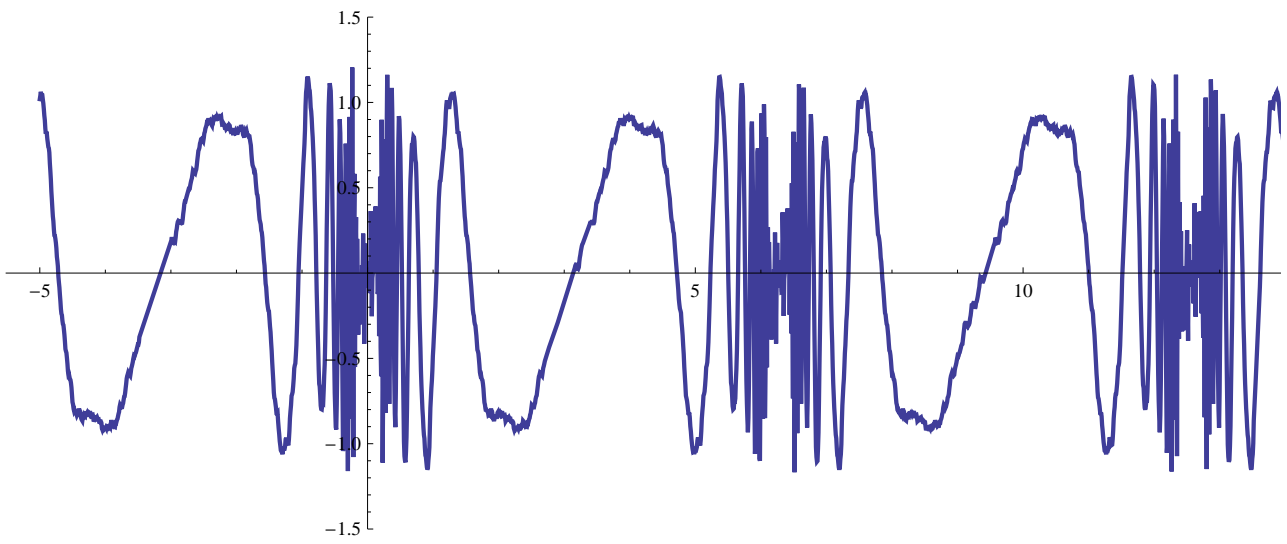
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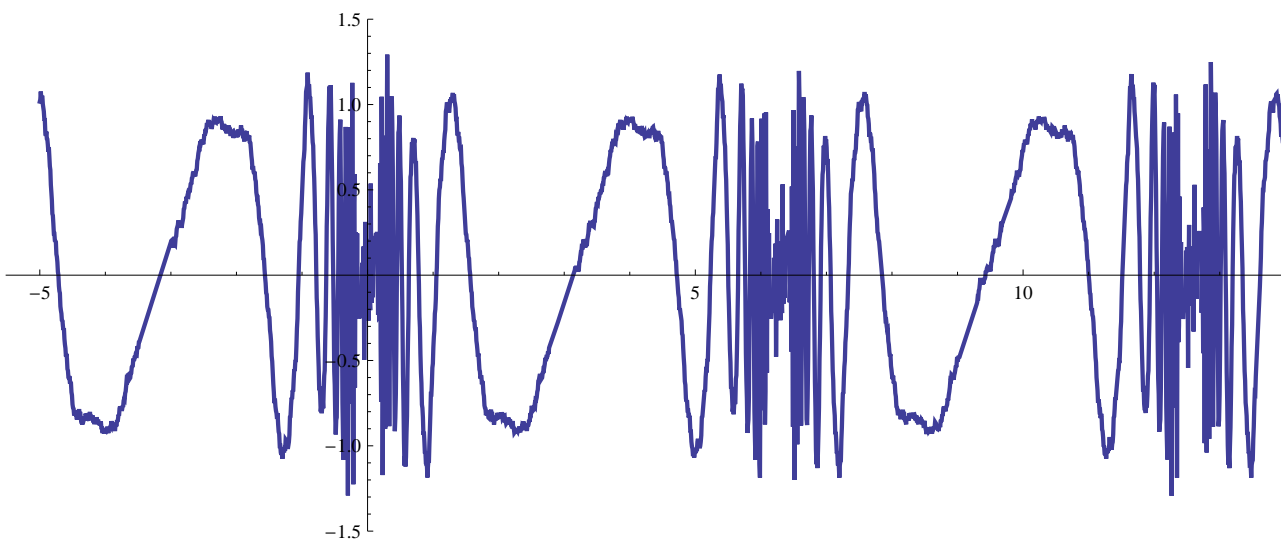
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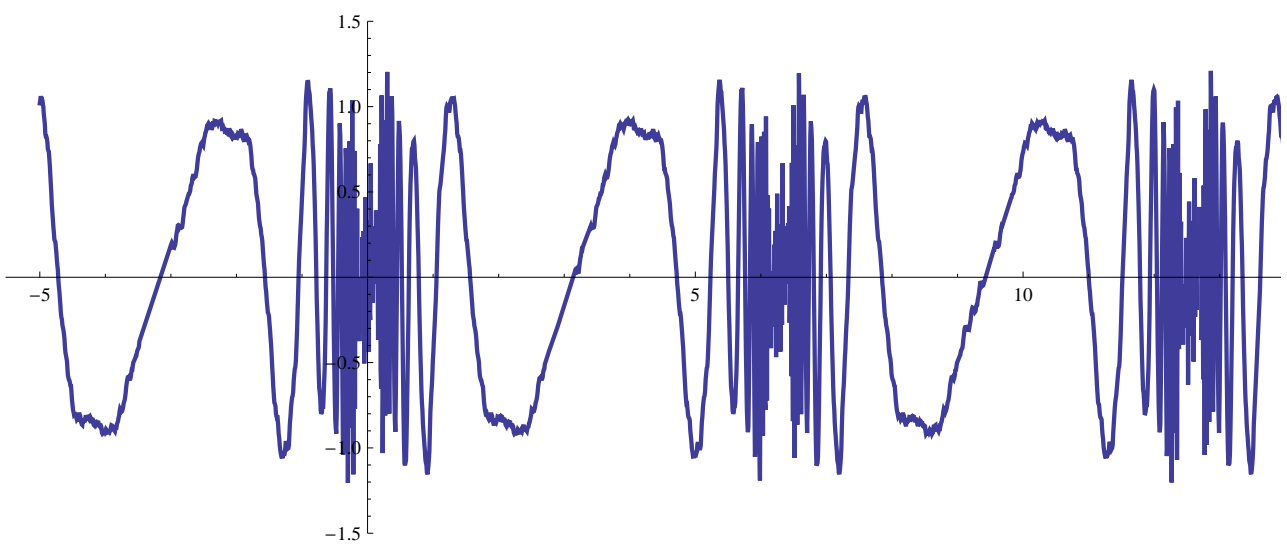
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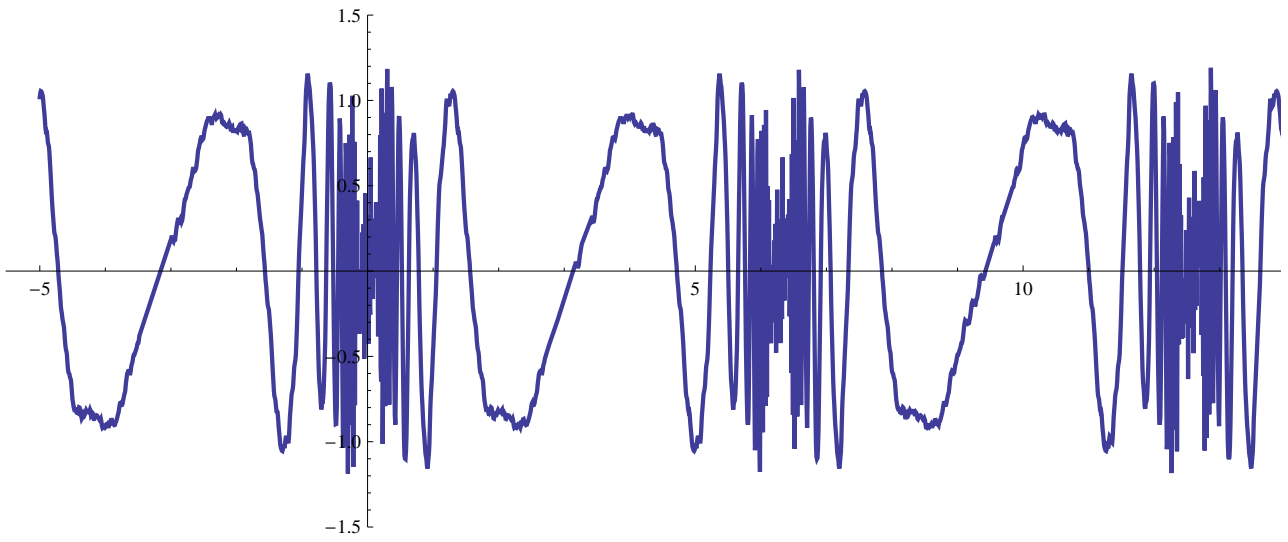
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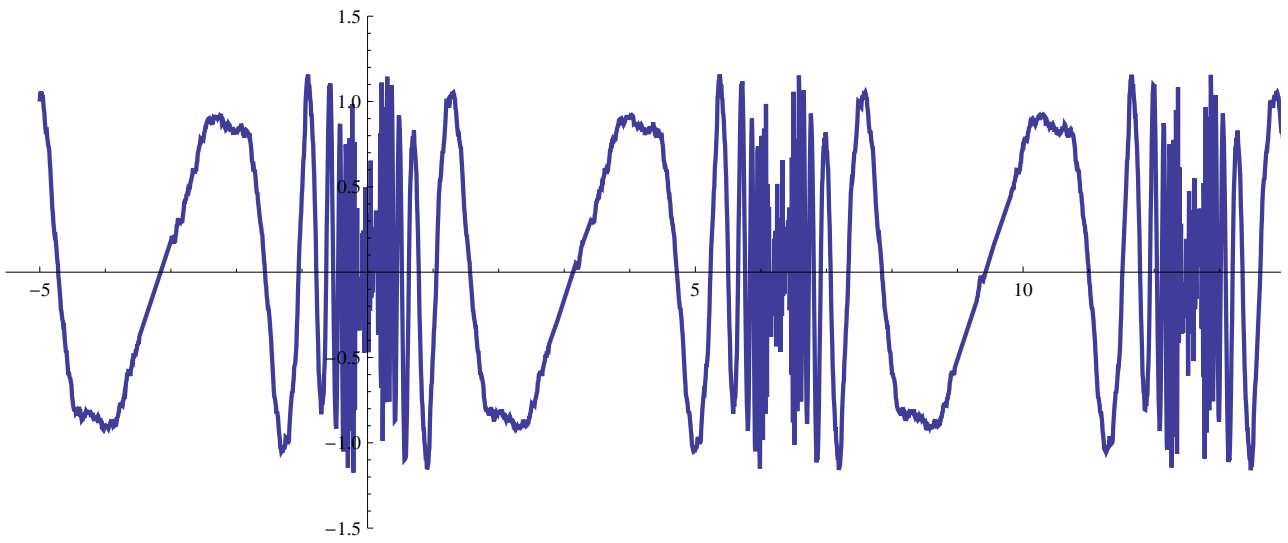
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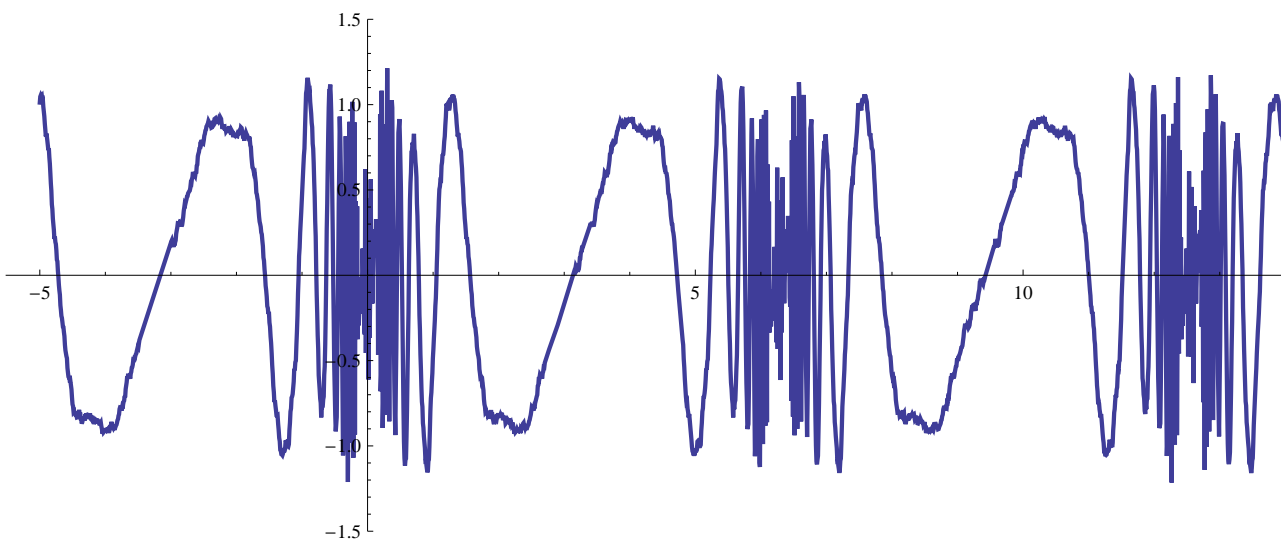
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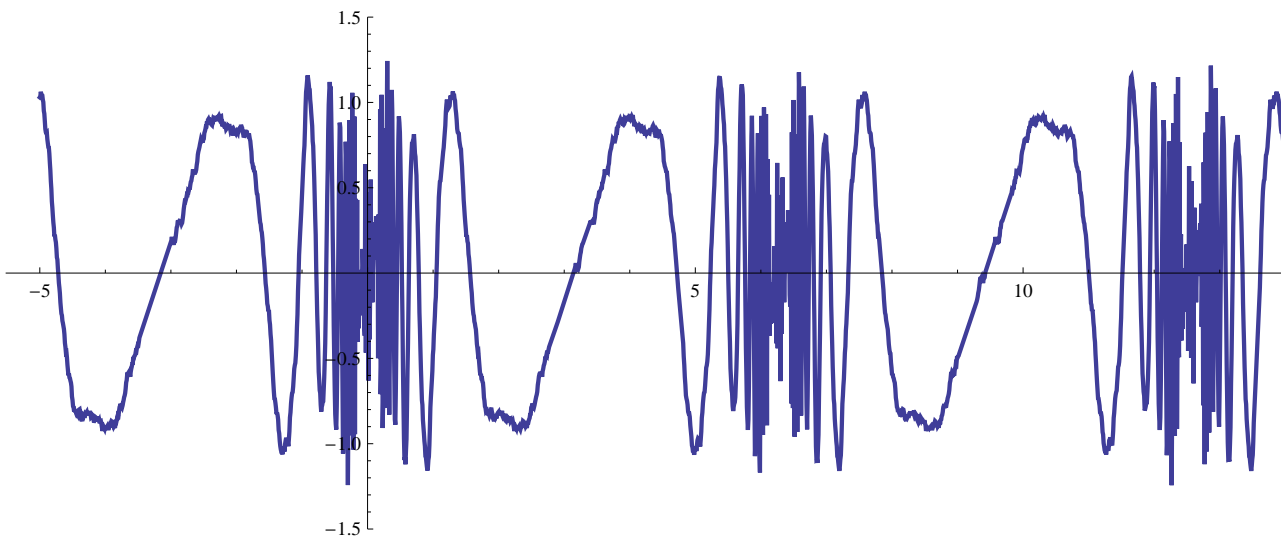
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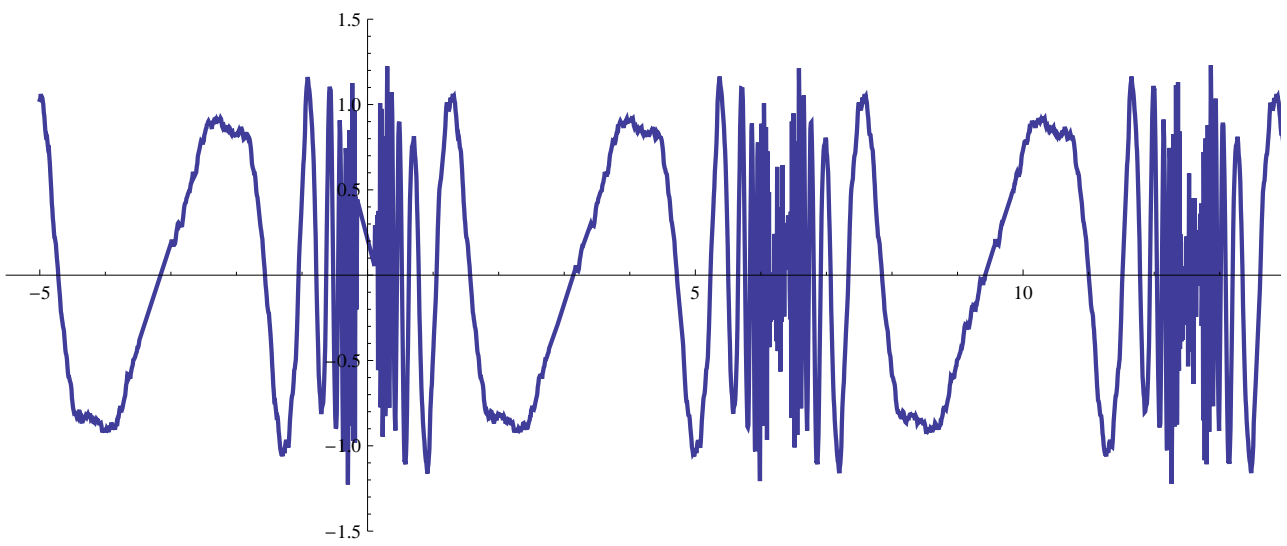
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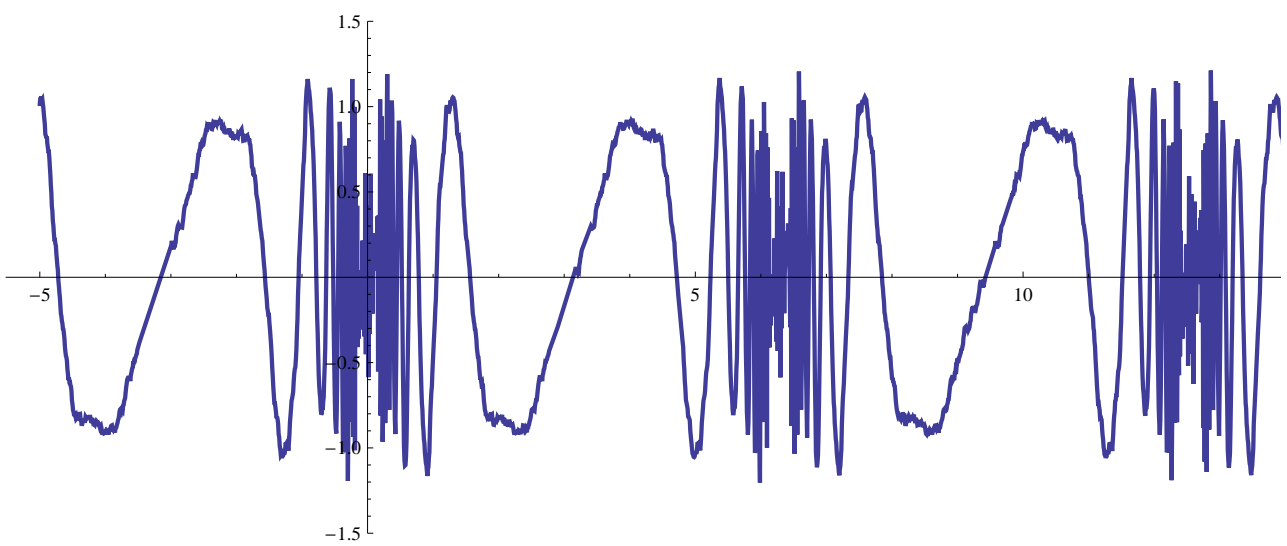
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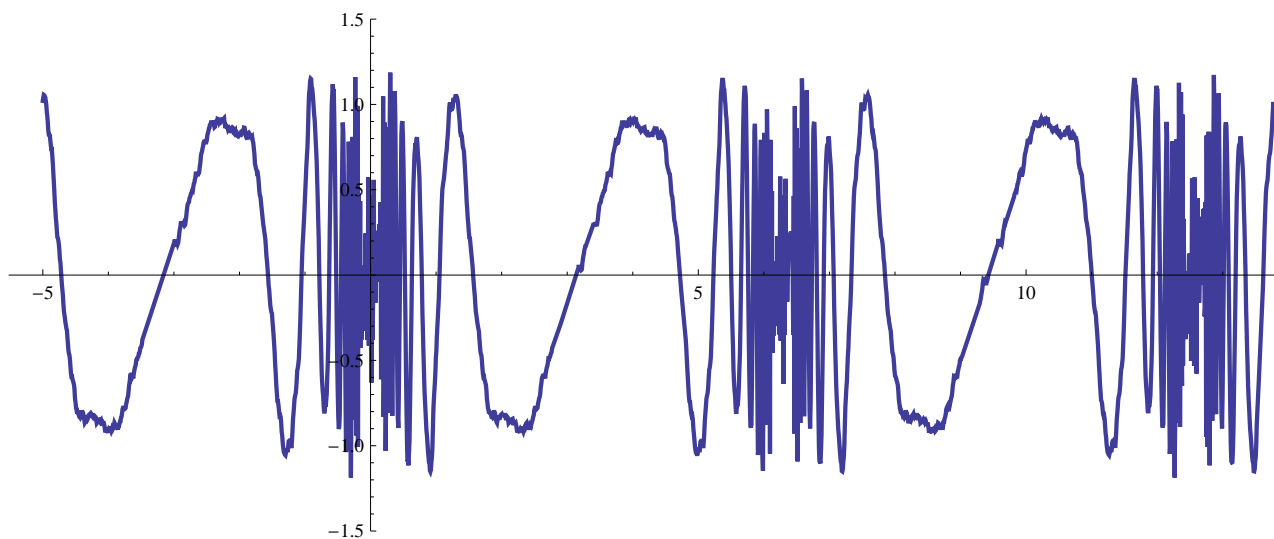
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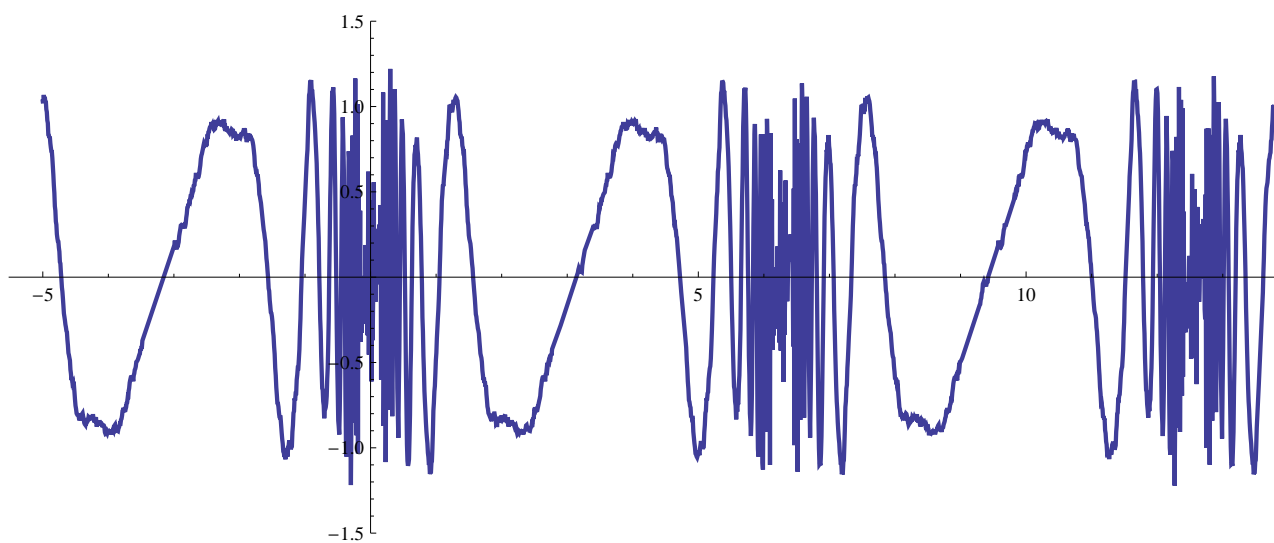
n=372 :



n=382 :



n=392 :



```
In[11]:= (* współczynniki przy sin[kt] *)
ListPlot[c]
```

