

```

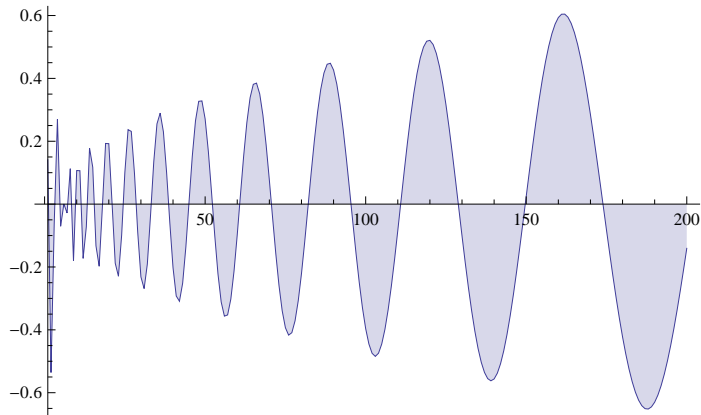
Clear[ss2, ss, ssd]
ss[j_, x_, c_] := ss[j, x, c] = ss[j - 1, x, c] + j^(-1/2) Sin[c + x Log[j]]
ss[0, x_, c_] := 0
ssa[j_, x_, c_] := j^(-1/2) Sin[c + x Log[j]]
ss2[n_, j_, x_, c_] := ss2[n, j, x, c] = ss2[n, j - 1, x, c] + j^(-1/2) Sin[c + x Log[j/n]]
ss2[n_, 0, x_, c_] := 0
ss3[j_, x_, c_] := ss3[j, x, c] = ss3[j - 1, x, c] + j^(-1/2) Sin[c x j]
ss3[0, x_, c_] := 0

```

```

DiscretePlot[ss[n, N@Im[ZetaZero[2]], 3], {n, 1, 200}]

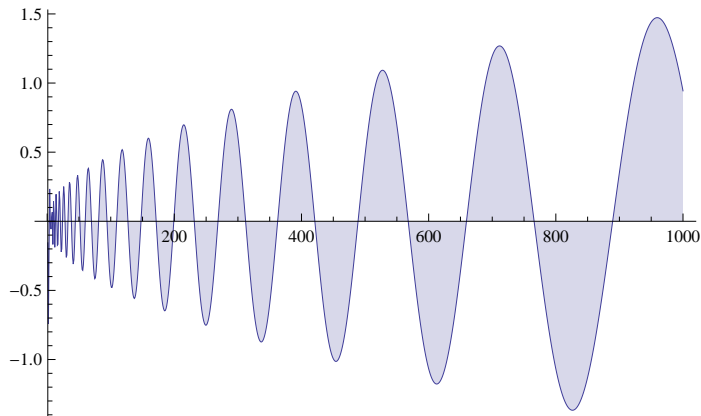
```



```

DiscretePlot[ss2[1000, k, N@Im[ZetaZero[2]], 4], {k, 1, 1000}]

```



```

Animate[DiscretePlot[Re[ss[n, N@Im[ZetaZero[5]], x]], {n, 1, 200}], {x, 0, 6.28}]

```

```

Animate[DiscretePlot[ss[n, N@Im[ZetaZero[300]], x], {n, 1, 1000}], {x, 0, 6.28}]

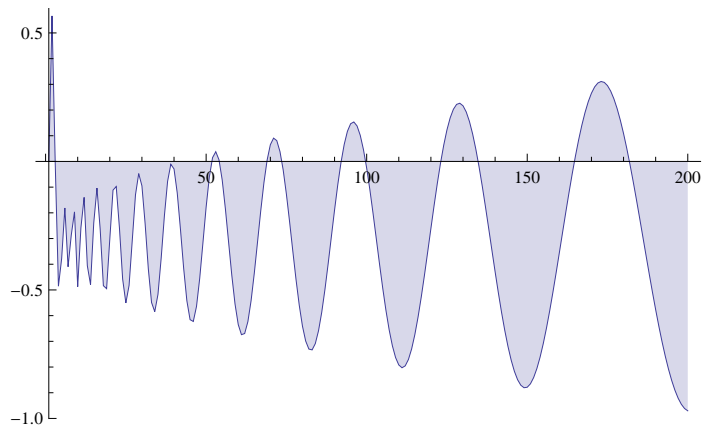
```

```

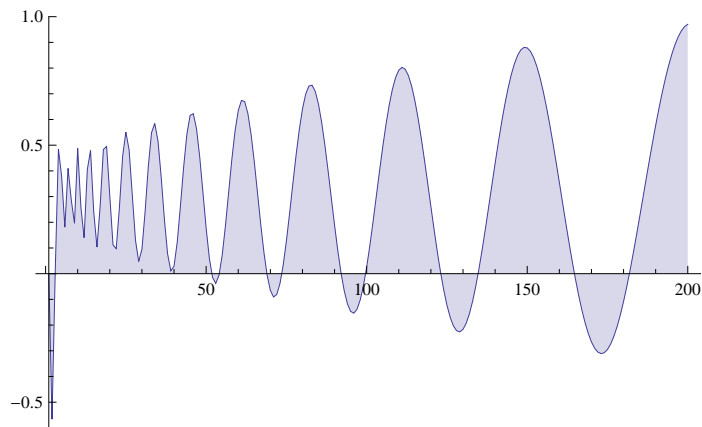
Animate[DiscretePlot[ss2[10 000, n, N@Im[ZetaZero[300]], x], {n, 1, 1000}], {x, 0, 6.28}]

```

```
DiscretePlot[ ss[n, .3 + N@Im[ZetaZero[2]], 0], {n, 1, 200}]
```



```
DiscretePlot[ ss[n, .3 + N@Im[ZetaZero[2]], Pi], {n, 1, 200}]
```



```
Animate[
  DiscretePlot[ Re@ss[n, N@Im[ZetaZero[3800]], x], {n, 1, 1000}, PlotRange -> 4], {x, 0, 6.28}]
```

```
N[ZetaZero[3800]]
```

```
0.5 + 4314.8 i
```

```
Animate[
  DiscretePlot[ Re@ssd[n, N@Im[ZetaZero[1]], x], {n, 1, 1000}, PlotRange -> 4], {x, 0, 6.28}]
```

```
j^(-1/2) /. j -> 10
```

$$\frac{1}{\sqrt{10}}$$

```
E^(-1/2 Log[j]) /. j -> 10
```

$$\frac{1}{\sqrt{10}}$$

```
Expand[1 / (2 I) E^(-1 / 2 Log[j]) (E^(I (x Log[j] + c)) - E^(-I (x Log[j] + c)))]
```

$$\frac{1}{2} i e^{-i c} j^{-\frac{1}{2}-i x} - \frac{1}{2} i e^{i c} j^{-\frac{1}{2}+i x}$$

```
-Sin[1.]
```

```
-0.841471
```

```
Sin[1. + Pi]
```

```
-0.841471
```

```
Animate[DiscretePlot[Re@ss4[n, N@ZetaZero@1, x I], {n, 1, 400}], {x, 0, 6.28}]
```