```
Exit[]
```

```
nn = 26; u0 = Table[Sin[i 2 Pi 10 / nn], {i, 1, nn}] // N
```

```
{0.663123, -0.992709, 0.822984, -0.239316, -0.464723, 0.935016, -0.935016, 0.464723,
 0.239316, -0.822984, 0.992709, -0.663123, 0., 0.663123, -0.992709, 0.822984, -0.239316,
 -0.464723, 0.935016, -0.935016, 0.464723, 0.239316, -0.822984, 0.992709, -0.663123, 0.}
```

```
c = Table[Sum[Exp[-I 2 Pi n m / nn] / nn u0[[n]], {n, 1, nn}], {m, 1, nn}] // N
c = Table[I DiscreteDelta[i - 2], {i, 1, nn}] // N
u[t_] :=
 Simplify[Table[Sum[c[[m]] * Exp[I ( 2 Pi m n / nn - w[m] t)], {m, 1, nn}], {n, 1, nn}]]
```

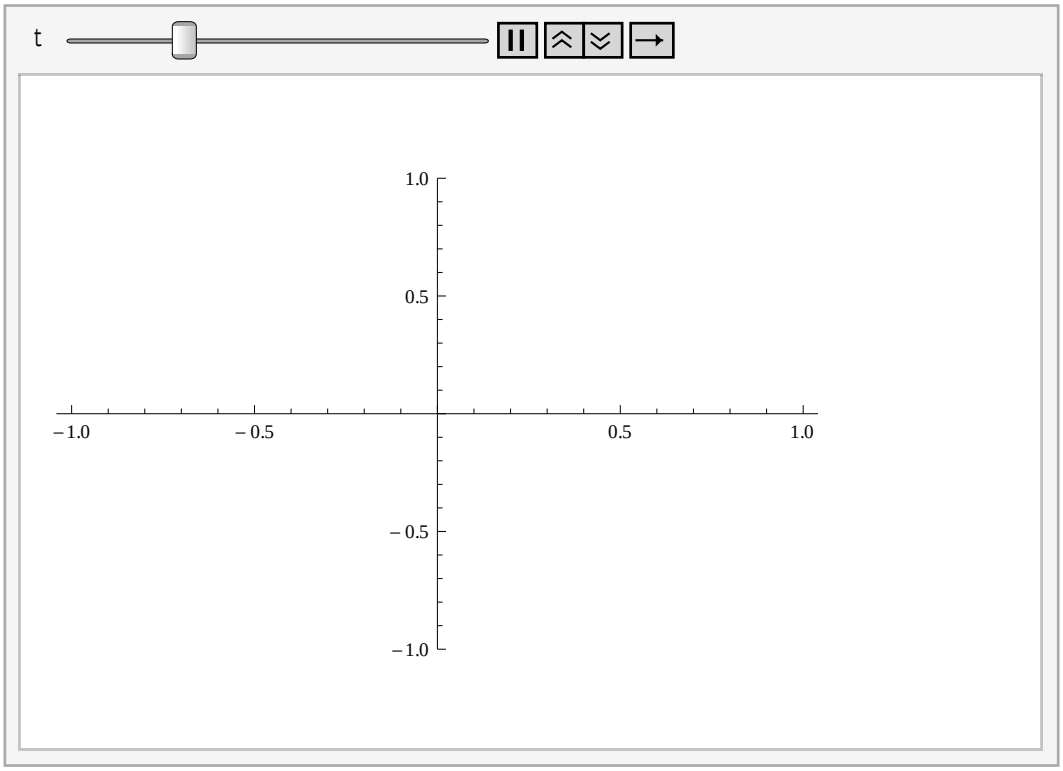
```
{0. - 1.9082 × 10^-17 I, 0. + 4.68375 × 10^-17 I, 0. - 6.93889 × 10^-18 I, 0. + 1.38778 × 10^-17 I,
 1.73472 × 10^-18 + 0. I, 9.54098 × 10^-18 - 2.77556 × 10^-17 I, 1.30104 × 10^-18 + 0. I,
 -6.93889 × 10^-18 + 1.38778 × 10^-17 I, -1.04083 × 10^-17 - 3.46945 × 10^-18 I,
 0. - 0.5 I, 1.38778 × 10^-17 - 8.67362 × 10^-18 I, 1.73472 × 10^-17 + 3.90313 × 10^-17 I,
 0., 1.73472 × 10^-17 - 3.90313 × 10^-17 I, 1.38778 × 10^-17 + 8.67362 × 10^-18 I,
 0. + 0.5 I, -1.04083 × 10^-17 + 3.46945 × 10^-18 I, -6.93889 × 10^-18 - 1.38778 × 10^-17 I,
 1.30104 × 10^-18 + 0. I, 9.54098 × 10^-18 + 2.77556 × 10^-17 I, 1.73472 × 10^-18 + 0. I,
 0. - 1.38778 × 10^-17 I, 0. + 6.93889 × 10^-18 I, 0. - 4.68375 × 10^-17 I, 0. + 1.9082 × 10^-17 I, 0.}
```

```
{0., 0. + 1. I, 0., 0., 0., 0., 0., 0., 0., 0.,
 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0.}
```

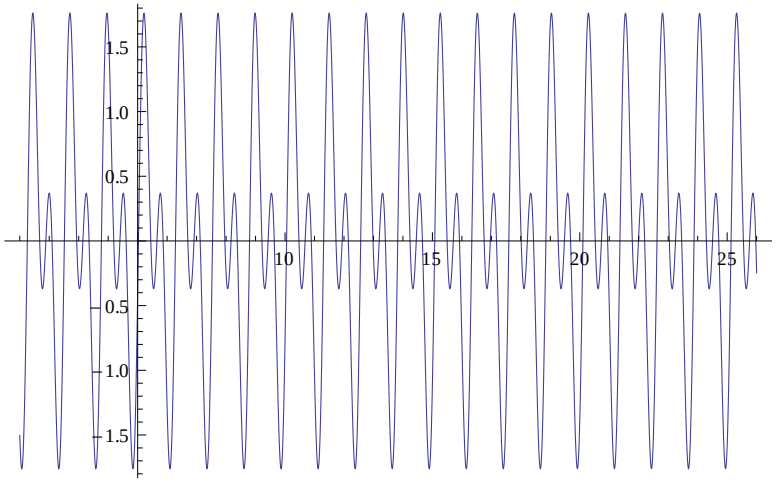
```
w[m_] := 2 * 0.01 Abs[Sin[Pi m / nn]];
```

```
p = 8; c = Table[I DiscreteDelta[i - p], {i, 1, nn}] // N
u[t_] :=
 Simplify[Table[Sum[c[[m]] * Exp[I (2 Pi m n / nn - w[m] t)], {m, 1, nn}], {n, 1, nn}]]
Animate[ListPlot[{Re[u[t]]}, Joined → True, PlotRange → {-1, 1}],
 {t, 0, 2 Pi / w[p] // N}]
```

```
{0., 0., 0., 0., 0., 0., 0., 0.+1. i, 0., 0., 0.,
 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0.}
```




```
Plot[Sin[5 x] + Sin[10 x], {x, 1, nn}]
```




,

```
u[0] // N
```

$$\{1.30515 \times 10^{-17} - 1.79638 \times 10^{-17}\ i,\ 0.,\ 1.30515 \times 10^{-17} - 1.79638 \times 10^{-17}\ i,\ 0.,\ 1.,\ 0.,\ 1.30515 \times 10^{-17} - 1.79638 \times 10^{-17}\ i,\ 0.,\ 1.30515 \times 10^{-17} - 1.79638 \times 10^{-17}\ i,\ 0.\}$$