```
f[n_, c_, s_] := c^-2 Sum[ j^-s k^-s, {j, 2, c^2 n}, {k, 2, c^2 n / j }] -
  2 c^-2 Sum[ j^-s k^-s, {j, 2, c}, {k, 2, c^2 n / j }] +
  c^-2 Sum[ j^-s k^-s, {j, 2, c}, {k, 2, c }]
```

```
f[6, 1, aa = -1] - f[5, 1, aa]
```

12

```
d2[n_, k_, s_] := Sum[j^-s d2[n / j, k - 1, s], {j, 2, n}]; d2[n_, 0, s_] := 1
```

```
N[d2[30, 2, -1]]
```

1020.

```
N[f[30, 20, -1]]
```

513 682.

```
N[Gamma[2, 0, -Log[100]] / Gamma[2]]
```

$361.517 - 4.41506 \times 10^{-14}$ i

```
N[Gamma[2, 0, - (1 - (-1)) Log[30]] / Gamma[2]]
N[Gamma[2, 0, -Log[30]] / Gamma[2]]
N[Gamma[2, 0, - (1 - ZetaZero[1]) Log[30]] / Gamma[2]]
```
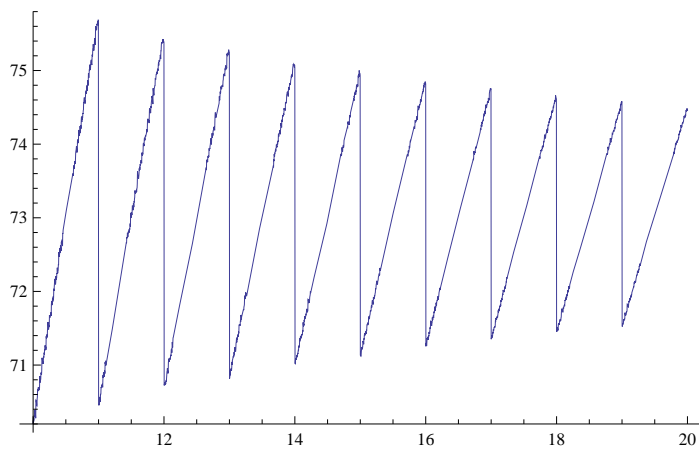
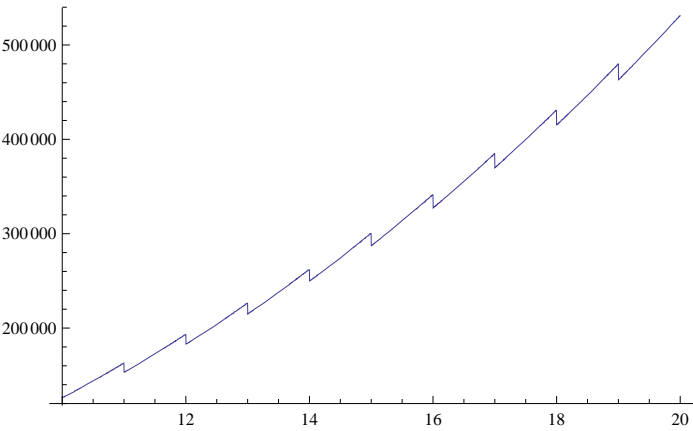$5223.16 - 6.3953 \times 10^{-13}$ i

$73.0359 - 8.82186 \times 10^{-15}$ i
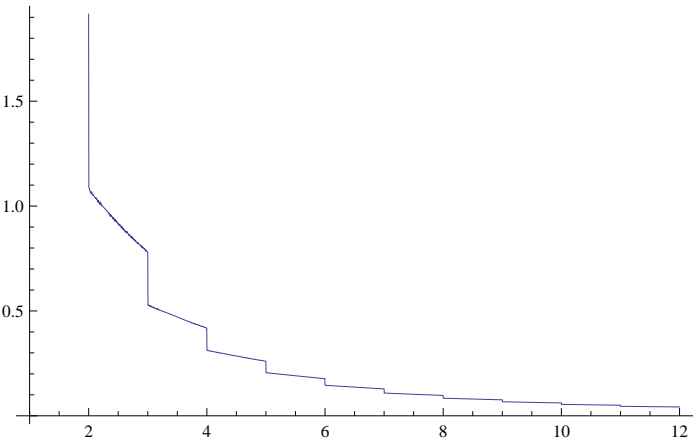
$213.126 + 156.055$ i

```
Plot[f[30, c, 0], {c, 10, 20}]
```
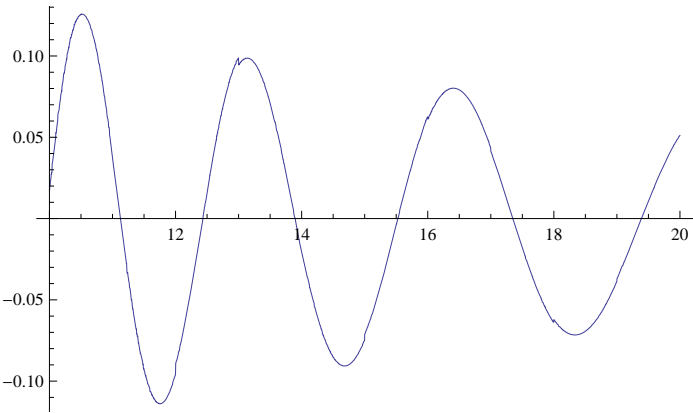
Plot[f[30, c, -1], {c, 10, 20}]

Plot[f[30, c, 1], {c, 1, 12}]

Plot[Re[f[30, c, N[ZetaZero[1]]]], {c, 10, 20}]

N[dc[30, 2, 20, -1]]

513 682.

d2[30, 2, -1]

1020

```
f[30, 14, -1]
```

$$\frac{48\,925\,223}{196}$$

```
N[Gamma[2, 0, -(1 - (-1)) Log[30]] / Gamma[2]]
```

$5223.16 - 6.3953 \times 10^{-13}\,\dot{\mathbb{1}}$

```
dc[n_, k_, c_, s_] := Sum[ (j)^-s c^(-1) dc[c n / j, k - 1, c, s], {j, 1 + c, n c^k}];
dc[n_, 0, c_, s_] := 1
```

```
N[dc[30, 2, 1, -1]]
```

```
1020.
```

```
Sum[ j, {j, 2, 30}]
```

```
464
```