```
s = 5;
n = 6;
N[Product[(1 - (Prime[i] + n)^(-s))^(-1), {i, 100}]]
N[Zeta[s]]
N[Zeta[s + n]]
N[Zeta[s, n]]
```

1.00006

1.03693

1.00049

0.000265966

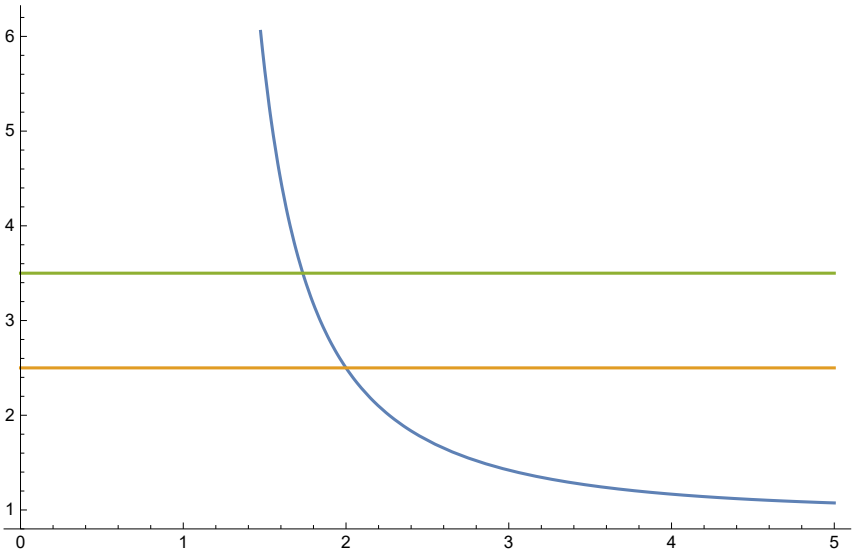
```
Product[(1 - (Prime[i] + n)^(-s))^(-1), {i, Infinity}] // FullSimplify
```

$$\prod_{i}^{\infty} \frac{1}{1 - \left(n + \text{Prime}[i]\right)^{-s}}$$

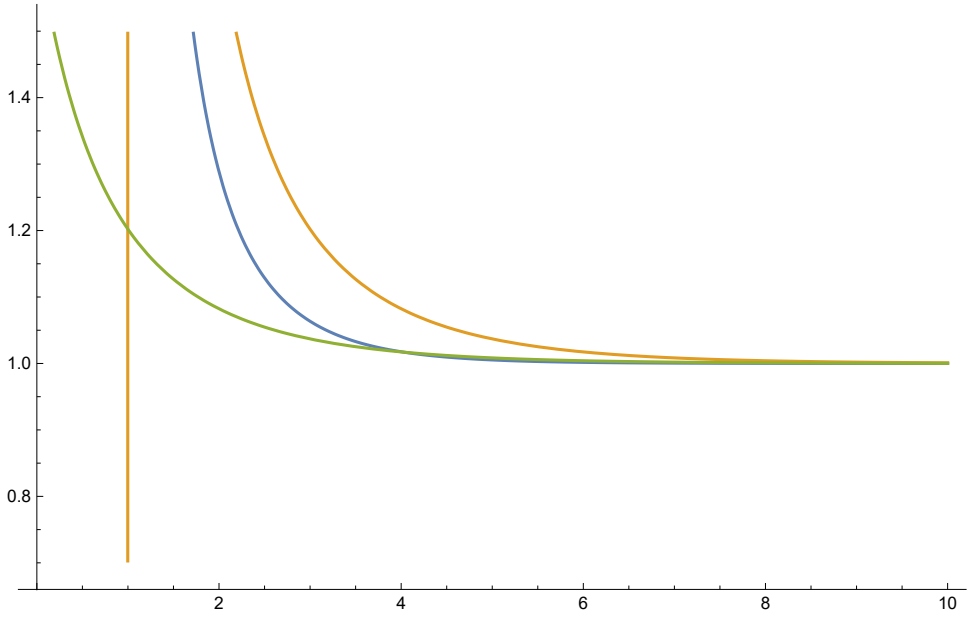
```
b = √3;
N[Product[((Prime[i]^b) + 1)/((Prime[i]^b) - 1), {i, 1000}]]
```

3.51403

```
Plot[{Product[((Prime[i]^x) + 1)/((Prime[i]^x) - 1), {i, 1000}], 2.5, 3.5}, {x, 0, 5}]
```



```
n = 2;
Plot[{Product[(1 - (Prime[i] + 1)^(-x))^(-1), {i, 100}], Zeta[x], Zeta[x + n]}, {x, 0, 10}]
```




```
imax = 10000
N[(Product[(1 - (Prime[i])^(-1))^(-1), {i, imax}])]
N[(Product[(1 - (Prime[i])^(-1))^(-1), {i, imax}]) / (Prime[imax])]
N[(Product[(1 - (Prime[i])^(-1))^(-1), {i, imax}]) / (Log[Prime[imax]])]
N[(Sum[1/n, {n, 1, 10000 imax}]) / (Log[Prime[imax]])]
```

```
10000
```

```
20.5935
```

```
0.000196636
```

```
1.78158
```

```
1.64354
```

```
N[E^EulerGamma]
```

```
1.78107
```

```
Plot[Log[Zeta[s]], {s, -10, 10}]
Plot[Log[Zeta[s]], {s, -100, 100}]
Plot[Zeta[s], {s, -10, 10}]
```