```
F=DIF[F,X,1]
PRINT F
 F =
 - 6 / (1 - X) ** 2 / LOG [1 - X] ** 3 - 3 / (1 - X) ** 2 / LOG [1 - X]
 ** 2 - 6 * X / (1 - X) ** 3 / LOG [1 - X] ** 4 - 6 * X / (1 - X) ** 3
 / LOG [1 - X] ** 3 - 2 * X / (1 - X) ** 3 / LOG [1 - X] ** 2
```

f'''

$f^{[iv]}$

```
F=DIF[F,X,1]
PRINT F
 F =
 - 24 / (1 - X) ** 3 / LOG [1 - X] ** 4 - 24 / (1 - X) ** 3 / LOG [1 -
 X] ** 3 - 8 / (1 - X) ** 3 / LOG [1 - X] ** 2 - 24 * X / (1 - X) ** 4
 / LOG [1 - X] ** 5 - 36 * X / (1 - X) ** 4 / LOG [1 - X] ** 4 - 22 * X
 / (1 - X) ** 4 / LOG [1 - X] ** 3 - 6 * X / (1 - X) ** 4 / LOG [1 - X]
 ** 2
```

has been made of such programs on p. 1 of Chapter 2 of Dr. Dragt's book.

However, in order to find the Taylor series we need to evaluate these things at $x=0$, where we get $0/0$. So we need to use L'Hôpital's rule for each one, n times for the n'th derivative, after getting a common denominator. This is clearly not the best route.