

The mth derivative of the function for each m is as follows:

The 1th derivative at $z = 0$ is 1.9999999999999978
The 2th derivative at $z = 0$ is 3.9999999999999982
The 3th derivative at $z = 0$ is 7.9999999999999985
The 4th derivative at $z = 0$ is 16.0
The 5th derivative at $z = 0$ is 32.000000000000001
The 6th derivative at $z = 0$ is 63.999999999999964
The 7th derivative at $z = 0$ is 127.99999999999869
The 8th derivative at $z = 0$ is 255.9999999999803
The 9th derivative at $z = 0$ is 511.999999999951
The 10th derivative at $z = 0$ is 1023.9999999991169
The 11th derivative at $z = 0$ is 2047.9999999591387
The 12th derivative at $z = 0$ is 4095.9999999328834
The 13th derivative at $z = 0$ is 8192.000002590277
The 14th derivative at $z = 0$ is 16383.999980568917
The 15th derivative at $z = 0$ is 32767.998795431035
The 16th derivative at $z = 0$ is 65535.997189001006
The 17th derivative at $z = 0$ is 131072.02920286346
The 18th derivative at $z = 0$ is 262143.04369028722
The 19th derivative at $z = 0$ is 524211.3389932175
The 20th derivative at $z = 0$ is 1048164.0241144444