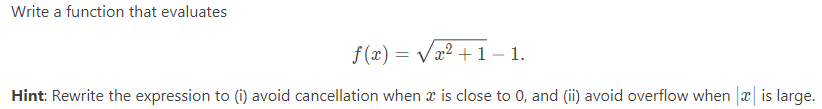
Et billede, der indeholder tekst

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Associative property: false.

Distributive property: false.



Man kan skrive

for at undgå cancellation når .

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Her kan du bruge, at når , så , da ordenen er så stor. I alle andre situationer blot .

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The absolute condition-number is:

And relative is:

Thus, the problem is ill-posed when , which happens at .

Else, it is a well-conditioned problem, it seems.

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the relative conditioning-number is

Thus, if which occurs at (which also makes us divide by zero), we have a ill-conditioned problem. But the function is continuous, and defined at . Therefore, it is a well-conditioned problem, actually.

The thing is, it depends on how high a resolution the algorithm has. If it has strong rounding-properties, it is an ill-posed problem as the denominator is zero but the function does not evaluate to 1. If it has quite exact evaluations (numerical precision), and if it just evaluates at , we should be fine. This will almost certainly not be the case.   
When x is small, we will find catastrophic cancellation between the terms . Thus, there is no way in which this is numerically stable.

c)

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No. Underflow and overflow may easily occur. This is not stable.

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single precision (ie float format):



double precision:



Big difference.

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The condition-number for this summation is:

And nu is smaller than , which gives the upper bound for the error: