

1991-BC5

5. Let f be the function given by $f(t) = \frac{4}{1+t^2}$ and G be the function given by $G(x) = \int_0^x f(t) dt$.
- (a) Find the first four nonzero terms and the general term for the power series expansion of $f(t)$ about $t = 0$.
 - (b) Find the first four nonzero terms and the general term for the power series expansion of $G(x)$ about $x = 0$.
 - (c) Find the interval of convergence of the power series in part (b). (Your solution must include an analysis that justifies your answer.)
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