HOMEWORK (SECTION 9.10)

Use some practical ways to find the Maclaurin series for $f(x)$ in sigma notation. Then, write out the first four nonzero terms for the Maclaurin series. In addition, find the radius of convergence.

1. $f(x) = \dfrac{1}{1+x^2}$
2. $f(x) = \dfrac{1}{2-x}$
3. $f(x) = \tan^{-1} x$
4. $f(x) = \dfrac{x^2}{1+3x}$
5. $f(x) = e^{-2x}$
6. $f(x) = x^3 e^{x^2}$
7. $f(x) = \cos(2x)$
8. $f(x) = x \sin x$