Answer on Question #49118 – Math – Calculus:

Find the Maclaurin expansion for the function $f(x) = \cos x^2$.

Solution.

Use the Maclaurin expansion for $g(t) = \cos t$:

$$\cos t = 1 - \frac{t^2}{2!} + \frac{t^4}{4!} - \frac{t^6}{6!} + \cdots;$$

$$t = x^2 \implies \cos x^2 = 1 - \frac{x^4}{2!} + \frac{x^8}{4!} - \frac{x^{12}}{6!} + \cdots.$$