

**DIRECTIONS** To receive full credit, you must provide complete legible solutions to the following problems in the space provided. No Attached papers. Transfer all your answers to the space provided.

1. Find the Maclaurin series for  $f(x)$  using the definition of a Maclaurin series. [Assume that  $f$  has a power series expansion. Do not show that  $R_n(x) \rightarrow 0$ .]

$$f(x) = \frac{1}{(1-x)^2}$$

Ans \_\_\_\_\_

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2. Find the Taylor series for  $f(x)$  centered at the given value of  $a$ . [Assume that  $f$  has a power series expansion. Do not show that  $R_n(x) \rightarrow 0$ .]

$$f(x) = x^4 - 4x^2 + 1, \quad a = 2$$

Ans \_\_\_\_\_