

QUIZ 9 - MATH 152

Friday, November 15

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Write down the power-series expansions of the following functions (you do not have to show details).

$$\frac{1}{1-x} =$$

$$e^x =$$

Using the above series write powerseries for the following functions:

(a) $f(x) = \frac{x^2}{1-3x}$

(b) $g(x) = e^{7x^2}$

2. [6 points] Consider the system of parametric equations

$$\begin{cases} x = t^3 - 1 \\ y = t^2 + 2 \end{cases}, \quad -1 \leq t \leq 2.$$

(a) Use a small table of values to sketch the graph of the orbit given by the system.

(b) Use elimination of the parameter t to give an equation (possibly in implicit form) of the curve containing the orbit in terms of x and y only.