Group Members: —————————————————————————   **Section:** —————————

On this quiz you may work in teams. You may **NOT** use your notes or book, but you may use the formula sheet. **Show all your work.**

If you have a question raise your hand and I will come to you.

1. (2 points) Given $a_n = \dfrac{e^{1/n}}{n}$.

   (a) Does the **sequence** converge or diverge?

   (b) Does the **series** $\displaystyle\sum_{n=1}^{\infty} a_n$ converge or diverge?

2. (2 points) Find the 3rd degree Taylor polynomial for $f(x) = \sqrt{x}$ about the point $x = 6$.

3. (2 points) The power series $\displaystyle\sum_{n=1}^{\infty} \frac{(3x)^n}{2^{n+1}}$ converges for $|x| < \frac{2}{3}$ to:

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4. (2 points) Test the series for convergence or divergence.

   (a) $\sum \dfrac{3^n n^2}{n!}$

   (b) $\sum \dfrac{n^2 + 1}{n^3 + 1}$

5. (2 points) **True or False** If True, explain why, if False, give a counterexample.

   If $\lim\limits_{n \to \infty} a_n = 0$ *then* $\sum\limits_{n=0}^{\infty} a_n$ *converges.*

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