QUIZ 10 - MATH 152 Monday, November 22

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

1. In the following problems find the Taylor series for $f(x)$ centered at the given value of a and its radius of convergence. **Work from scratch**, i.e., do not assume that you know the formulas for any other series. However, assume that $f(x)$ has a power series, i.e., **do not show** that $R_n(x) \to 0$. Also, **do not find** the interval of convergence.

   (a) $f(x) = xe^x$ at $a = 0$, i.e. Maclaurin series.

   (b) $f(x) = \ln x$ at $a = 2$.

2. Use the binomial expansion to expand the function $f(x) = \frac{1}{(2+x)^3}$ as a power series. State the radius of convergence.

3. Use the Maclaurin series for $\cos x$ to compute the Maclaurin series for $f(x) = x\cos(2x)$.