Taylor Polynomials (Section 5) **Version C**
Rensselaer Calculus Skills Practice Page

No calculators will be allowed and no partial credit will be given.

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1. Find the Taylor polynomial of degree 2 for $h(x) = \cos(x)$ centered at $\frac{\pi}{6}$.
2. Find the Taylor polynomial of degree 2 for $g(x) = 3\,\ln(3\,x)$ centered at $\frac{1}{3}$.
3. Find the Taylor polynomial of degree 2 for $f(x) = \sqrt{6}\,\sqrt{x}$ centered at $\frac{1}{6}$.
4. Find the Taylor polynomial of degree 2 for $g(x) = \frac{1}{(3-x)^3}$ centered at 2 .
5. Find the Taylor polynomial of degree 4 for $h(x) = 3\,(x+1)^5$ centered at -2 .

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Answer Key Rensselaer Calculus Skills Practice Page, Fall 2007

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1. $\frac{\sqrt{3}}{2} - \frac{x - \frac{\pi}{6}}{2} - \frac{\sqrt{3}\left(x - \frac{\pi}{6}\right)^2}{4}$
2. $9\left(x - \frac{1}{3}\right) - \frac{27\left(x - \frac{1}{3}\right)^2}{2}$
3. $1 + 3\left(x - \frac{1}{6}\right) - \frac{9\left(x - \frac{1}{6}\right)^2}{2}$
4. $1 + 3(x-2) + 6(x-2)^2$
5. $-3 + 15(x+2) - 30(x+2)^2 + 30(x+2)^3 - 15(x+2)^4$