Quiz 4 **Calculus 2** **11/30/2007**

Each problem is worth 5 points. No justification whatsoever is required for full credit (this time).

1. Give a Maclaurin polynomial of at least 5th degree for $f(x) = \sin x$.

$f(x) = \sin x \qquad f(0) = 0$

$f'(x) = \cos x \qquad f'(0) = 1$

$f''(x) = -\sin x \qquad f''(0) = 0$

$f^3(x) = -\cos x \qquad f^3(0) = -1$

$$p(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!}$$

2. Give a Maclaurin polynomial of at least 5th degree for $g(x) = \cos x$.

$$p(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!}$$

$g(x) = \cos x \qquad g(0) = 1$

$g'(x) = -\sin x \qquad g'(0) = 0$

$g''(x) = -\cos x \qquad g''(0) = -1$

$g^3(x) = \sin x \qquad g^3(0) = 0$

3. Give a Maclaurin polynomial of at least 5th degree for $h(x) = e^x$.

$h(x) = e^x \qquad h(0) = 1$

$h'(x) = e^x \qquad h'(0) = 1$

$h''(x) = e^x \qquad h''(0) = 1$

$$p(x) = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \frac{x^5}{5!}$$

Great!