Quiz 1 **Calculus 2** **8/31/2005**

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Find the most general antiderivative of the function $f(x) = \dfrac{10}{x^9}$.

$f(x) = 10x^{-9}$

$\int 10x^{-9}\,dx = \dfrac{10x^{-8}}{-8} + C$

$-\frac{5}{4}x^{-8} + C$

Well done

2. If $f''(x) = 2 - 12x$, $f(0) = 9$, and $f(2) = 15$, find $f(x)$.

$f'(x) = 2x - 6x^2 + C$

$f(x) = x^2 - 2x^3 + Cx + D$

Great

$f(0) = 0 - 0 + 0 + D = 9$

$D = 9$

$f(2) = 2^2 - 2(2)^3 + C(2) + 9 = 15$

$4 - 16 + 2C + 9 = 15$

$2C = 18$

$C = 9$

$f(x) = -2x^3 + x^2 + 9x + 9$