NAME: _____

Math 163 (Cowen) **Test 2 (Retake)** **22 February 2008**

There are 5 pages and 20 questions. No partial credit! Scoring will be '100' for all correct or exactly one incorrect, '90' for 2 incorrect, '80' for 3 incorrect, etc., to '−90' for all incorrect.

You will have 1 hour to complete this test!

For each question, find the derivative of the given function.

(10 points) **1.** $f(x) = 3x^4 - \dfrac{x^3}{4} + 23.9x + \sqrt{2}$

$f'(x) =$

(10 points) **2.** $g(t) = 5\sqrt{t^{11}} + \dfrac{5}{\sqrt[6]{t}} - \dfrac{6}{t^5}$

$g'(t) =$

(10 points) **3.** $y = \dfrac{t^3 - 4t^4}{7 - 3t}$

$y' =$

(10 points) **4.** $h(w) = \dfrac{14}{5w^6 - 3w^4 - 2w}$

$h'(w) =$

(10 points) **5.** $r(\theta) = 3\sin\theta + 7\csc\theta - 6\cot\theta$

$r'(\theta) =$

(10 points) **6.** $f(t) = 8t^5\cos t$

$f'(t) =$

(10 points) **7.** $h(w) = \dfrac{3w^4 + \sin w}{\cos w - \tan w}$

$h'(w) =$

(10 points) **8.** $y = 3x^2\sec x\tan x$

$y' =$