

NAME: \_\_\_\_\_

**Math 164 (Cowen)**

**Test 1 (Practice)**

**3 September 2007**

There are 5 pages and 20 questions. No partial credit! Scoring will be '110' for all correct, '100' for 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 of the questions 1 – 8, find the derivative of the given function.

(10 points) 1.  $f(x) = 4x^5 + 3\sqrt{t^{11}} - \frac{3}{\sqrt[4]{t}} - \frac{4}{t^8}$   
 $f'(x) =$

(10 points) 2.  $g(t) = 3e^{4t} - 8.3 \ln 5t$   
 $g'(t) =$

(10 points) 3.  $y = 5.1 \arcsin 2x - 3 \arctan \frac{x}{5}$   
 $y' =$

(10 points) 4.  $h(w) = \frac{5}{\sqrt{16 - w^2}}$   
 $h'(w) =$

(10 points) 5.  $r(\theta) = e^{\tan 5\theta}$   
 $r'(\theta) =$

(10 points) 6.  $f(t) = \ln(2 + e^{-3t^2})$   
 $f'(t) =$

(10 points) 7.  $h(w) = \ln\left(\frac{5w^3 + \cos w}{3 + e^{2w}}\right)$   
 $h'(w) =$

(10 points) 8.  $y = (x^8 + 5)^5 e^{3x^4}$   
 $y' =$

For each of the questions 9 – 20, find an indefinite integral or the definite integral, as indicated.

(10 points) 9.  $\int (5 - 4z)^6 dz =$

(10 points) 10.  $\int (2y^2 + 3)^5 y dy =$

(10 points) 11.  $\int (3e^{2x} + 1)^5 e^{2x} dx =$

(10 points) 12.  $\int 4 \sin 5t - 2(\sec 3t)^2 dt =$

(10 points) 13.  $\int \frac{11x}{144 + x^2} dx =$

(10 points) 14.  $\int \frac{3}{25 + 4x^2} dx =$

(10 points) 15.  $\int (\sin 2y)e^{\cos 2y} dy =$

(10 points) 16.  $\int \frac{1}{t\sqrt{t^2 - 1}} dt =$

(10 points) 17.  $\int_{-1}^1 \frac{1}{\sqrt{4-a^2}} da =$

(10 points) 18.  $\int_0^3 \frac{y}{\sqrt{100-4y^2}} dy =$

(10 points) 19.  $\int_0^5 \frac{1}{4+z^2} dz =$

(10 points) 20.  $\int_{-\pi/2}^{\pi/2} \frac{\cos \theta}{3 + \sin \theta} d\theta =$