Math 1B

Test 1 Extra Credit

For each of the following problems, be sure to show your work.

1. Find: $\displaystyle\int \frac{18}{(x+3)(x^2+9)}\,dx$

2. Find the exact value: $\displaystyle\int_0^1 \frac{x^3}{x^4-1}\,dx$

3. Find the exact value: $\displaystyle\int_0^1 x\cdot\tan^{-1}\,dx$

4. Find the exact value of the surface area of the solid formed by revolving the graph of $y = \frac{1}{3}x^{1/2} - x^{3/2}$, $0 \le x \le \frac{1}{3}$ about the x-axis. Show your work.

5. Use the Theorem of Pappus 2 to find the volume of the solid formed by revolving the circle $x^2 + (y+4)^2 = 4$ about the x-axis.