MATH 102
QUIZ 2A

Name: **ST ID** **section:**

1. Determine whether

   (a) the sequence $\left\{\frac{n}{2^n}\right\}$ converges or diverges. If it converges, find its limit.

   (b) the series $\sum_{n=0}^{\infty} \frac{3^n + 2^n}{7(5)^n}$ is convergent or divergent, give the sum if convergent.

   (c) the series $\sum_{k=1}^{\infty} \frac{1}{1+k^2}$ converges or diverges.

2. Evaluate $\int \frac{dx}{\sqrt{x-2} - (x-2)^{3/2}}$

3. $\int_4^5 \frac{dt}{\sqrt{t^2-6t+8}}$

4. $\int_0^{\pi/3} \tan^3 x \sec^4 dx$

5. Use the method of the cylindrical shells to the find the volume generated by rotating the region bounded by the curves $y = e^x,\ y = e^{-x}$ and $x = 1$ about the $y - axis$.