No notes or calculators. You can leave an answer as a numerical expression without computing the final value. For example, this is a perfectly acceptable answer: 
\[ \frac{(250 - 63)}{(1 - e^{(-6+3.5)})} \ast ln(27/168). \] Show your work clearly!!

1. (4 points) Compute the integral.

\[
\int \frac{1}{\sqrt{x}} e^{(\sqrt{x}+1)} \, dx.
\]

1. \( u = \sqrt{x} + 1 \)

2. \( \frac{du}{dx} = \frac{1}{2\sqrt{x}} \Rightarrow 2du = \frac{1}{\sqrt{x}} \, dx \)

\[
3. \int e^u (2du) = 2e^u
\]

\[
= 2e^{(\sqrt{x}+1)} + C
\]

2. (6 points) Find the volume of the solid of revolution formed by rotating the area enclosed by the curves \( y = \sqrt{x} \) and \( y = 1 \) between \( x = 0 \) and \( x = 1 \).

\[
\text{Volume} = \pi \int_0^1 \left(1^2 - (\sqrt{x})^2\right) \, dx = \pi \int_0^1 (1 - x) \, dx
\]

\[
= \pi \left(x - \frac{x^2}{2}\right)|_0^1
\]

\[
= \pi \left(1 - \frac{1}{2}\right) = \frac{\pi}{2}
\]