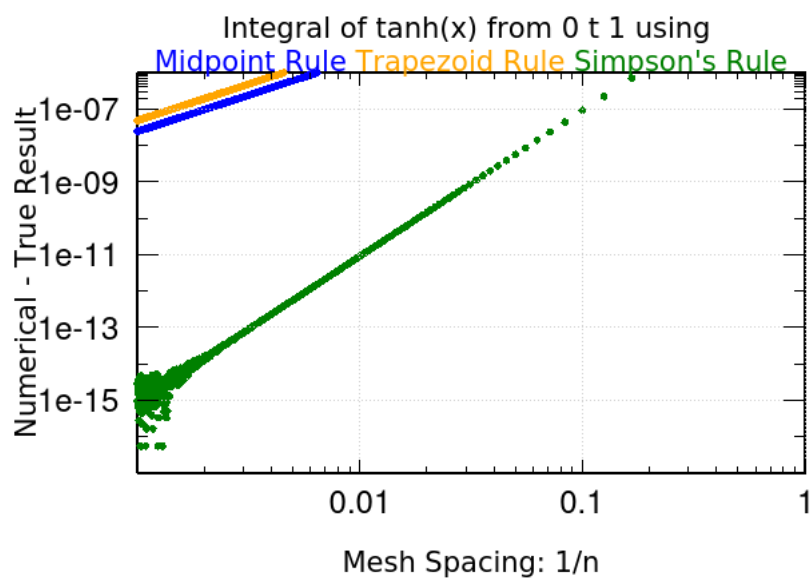


PHYS 3274 Homework 5

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September 26 2020

1 EX1



2 EX2

To be completed.

3 EX4

3.1

$$\int_{r_{min}}^{r_{max}} \sqrt{2m(E - V'(r))} dr = (n + 1/2)\hbar$$

$$\int_0^1 \sqrt{\frac{2ma^2}{\hbar} E - V_0 \xi e^{-\xi^2/2}} d\xi \approx N$$

$$\int_0^1 \sqrt{\epsilon} \sqrt{1 - v_0 \epsilon e^{-\xi^2/2}} d\xi \approx N$$

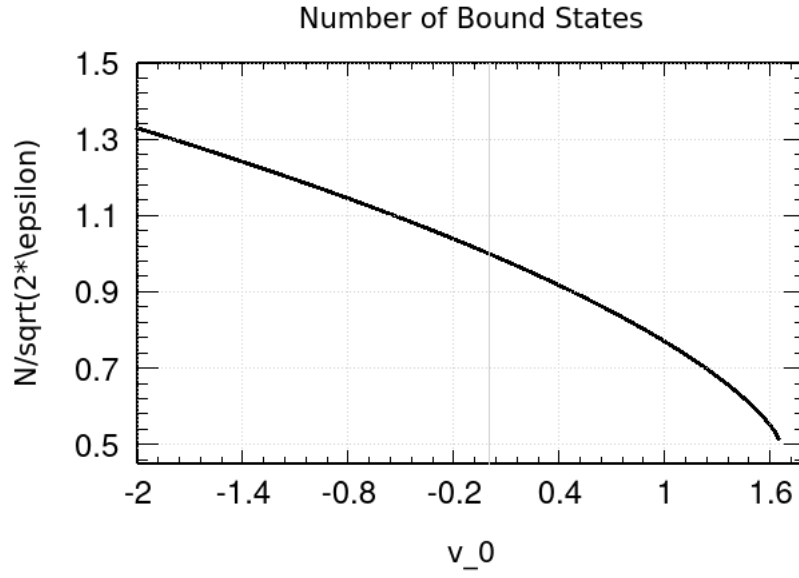
$$\frac{N}{\sqrt{2\epsilon}} \approx \int_0^1 \sqrt{1 - v_0 \xi \exp(-\xi^2/2)} d\xi \quad (1)$$

where,

$$\epsilon = \frac{E}{E_0} \quad (2)$$

and the integral is only dependent on $v_0 = V_0/E_0$

3.2



4

I could not get this to compile.