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Quiz 7

1.

$$\int_{X_-(E)}^{X_+(E)} p_E(x')dx' = \frac{h}{2}(n+1/2)$$

$$p_E(x) = \left[2m(E-V(x))\right]^{1/2}$$

Even though the WKB quantization cannot be exact for potentials of the form

I. $V(x) = 0$ $|x| \leq L/2$
            $V(x) = \infty$ $|x| > L/2$

II. $V(x) = (2A/L)x$ $|x| \leq L/2$
            $V(x) = \infty$ $|x| > L/2$

A.   Evaluate the quantization integral for potentials I and II at E = A.

B.   Which potential supports more bound energy levels at E ≤ A?

C.   For the $V(x) = \infty$ for $|x| > L/2$ potentials in this example, does the WKB quantization integral over-estimate or under-estimate the true number of bound levels at E ≤ A? Suggest a reason in support of your answer.

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