Homework 1

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Problem 1.2

Given the equation from Example 1.2.

$$\rho(x) = \frac{1}{2\sqrt{hx}} \tag{1}$$

Standard deviation formula is

$$\sigma = \sqrt{\sigma^2} = \sqrt{\langle x^2 \rangle - \langle x \rangle^2} \tag{2}$$

$$\langle x \rangle = \int_{-\infty}^{\infty} x\rho(x)\, dx \tag{3}$$

$$\sigma = \sqrt{\int_0^h x^2 \frac{1}{2\sqrt{hx}}\, dx - \left[\int_0^h x \frac{1}{2\sqrt{hx}}\, dx\right]^2} \tag{4}$$